Analysis of Performances of Pupils in the High School of Kimwenza from a Data Warehouse based on Data mining from 2015 to 2021

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Summary

In this article, we analyze the performance of students in the eighth year of basic education before, during, and after COVID-19 at Kimwenza High School from 2015 to 2021. The machine learning model used is the algorithm classification of the decision tree with the ID3 algorithm. The confusion matrix helps us to predict in the short term these results in the future years.

Keywords: *Performance Analysis, Machine Learning, Classification Algorithm, Decision Tree, Confusion Matrix, Data mining, Data warehouse, Covid -19, Kimwenza, algorithm ID3*

1. Introduction

The sustainable development of a country necessarily passes through education. The Democratic Republic of Congo (DRC in acronym) is not spared. Therefore, there is a ministry dedicated to it. In this article, our efforts are directed towards the performance analysis of the pupils of the eighth year of basic education of the high school of Kimwenzabefore, during, and after COVID-19. High School of Kimwenza is a Catholic School of the Diocese of Kisantu in the DRCongo, located in the Commune of Mont- Ngafula.

The objective pursued is to assess the level of performance of students in the eighth year of basic education at the Lycée de Kimwenza and to predict them in the short term for the coming years.

The approached methodology consisted in arriving at the Kimwenza high school to collect information on the results obtained in the time interval as indicated above. This is for each student: his age, the method of payment of his school fees, the school year and the application (results) and the type of education given at the Lycée. We did not used the gender of thesepupilsbecause of the total absence of boys in this school.

The contribution of this article is not only to analyze the performance of pupils in the eighth year of basic education but also to predict it. Thus, we had also proposed a short-term prediction from the confusion matrix for the coming years.

2. Presentation of survey data

The table of data collected below contains the variables and modalities for the construction of the model and its prediction.

Table 1: Presentation of analysis data

Number	Class	Age	Payment method	Result	Application	Year_Sc
1	2nd A	12 years	relative	87.3	Excellent	2015-2016
2	2nd A	13 years	relative	82.8	Excellent	2015-2016
3	2nd A	15 years old	relative	81.1	Excellent	2015-2016
4	2nd A	13 years	relative	79.8	Excellent	2015-2016
5	2nd A	13 years	relative	72.1	Excellent	2015-2016
6	2nd A	14 years old	relative	70.1	Excellent	2015-2016
7	2nd A	14 years old	relative	68.7	Alright	2015-2016
8	2nd A	12 years	relative	66.1	Alright	2015-2016
9	2nd A	13 years	relative	65.2	Alright	2015-2016
10	2nd A	13 years	relative	62.9	Alright	2015-2016
11	2nd A	12 years	relative	62.1	Alright	2015-2016
12	2nd A	12 years	relative	59.7	GOOD	2015-2016
13	2nd A	14 years old	relative	59.3	GOOD	2015-2016
14	2nd A	13 years	relative	58.3	GOOD	2015-2016
15	2nd A	13 years	relative	67.3	Alright	2015-2016
16	2nd A	14 years old	relative	62.9	Alright	2015-2016
17	2nd A	12 years	relative	61.6	Alright	2015-2016
18	2nd A	13 years	relative	59.1	GOOD	2015-2016
19	2nd A	13 years	relative	58.8	GOOD	2015-2016
20	2nd A	13 years	relative	57.3	GOOD	2015-2016
21	2nd A	12 years	relative	57.2	GOOD	2015-2016
22	2nd A	15 years old	relative	56.2	GOOD	2015-2016
23	2nd A	13 years	relative	56.1	GOOD	2015-2016
24	2nd A	12 years	relative	55.9	GOOD	2015-2016
25	2nd A	14 years old	relative	54.3	GOOD	2015-2016
26	2nd A	12 years	relative	54.2	GOOD	2015-2016
27	2nd A	13 years	relative	54.2	GOOD	2015-2016
28	2nd A	15 years old	relative	54.1	GOOD	2015-2016
29	2nd A	13 years	relative	53.9	GOOD	2015-2016
30	2nd A	14 years old	relative	53.8	GOOD	2015-2016
31	2nd A	15 years old	relative	53.6	GOOD	2015-2016
32	2nd A	12 years	relative	52.9	GOOD	2015-2016
33	2nd A	12 years	relative	52.6	GOOD	2015-2016
34	2nd A	13 years	relative	52.4	GOOD	2015-2016
35	2nd A	14 years old	relative	52.2	RESOOD	2015-2016
36	2nd A	12 years	relative	52.2	GOOD	2015-2016
37	2nd A	13 years	relative	52.1	GOOD	2015-2016

38	2nd A	14 years old	relative	52	GOOD	2015-2016
39	2nd A	15 years old	relative	49.4	Weak	2015-2016
40	2nd A	13 years	relative	49	Weak	2015-2016
41	2nd A	15 years old	relative	44.9	Weak	2015-2016
42	2nd A	13 years	relative	47.8	Weak	2015-2016
43	2nd A	14 years old	relative	47.7	Weak	2015-2016
44	2nd A	14 years old	relative	44.7	Weak	2015-2016
45	2nd B	14 years old	relative	43.3	Weak	2015-2016
46	2nd B	14 years old	relative	41.6	Weak	2015-2016
47	2nd B	14 years old	relative	41.3	Weak	2015-2016
48	2nd B	14 years old	relative	49.5	Weak	2015-2016
49	2nd B	13 years	relative	83	Excellent	2015-2016
50	2nd B	15 years old	relative	81	Excellent	2015-2016
51	2nd B	13 years	relative	78.7	Excellent	2015-2016
52	2nd B	15 years old	relative	77.7	Excellent	2015-2016
53	2nd B	14 years old	relative	72.3	Excellent	2015-2016
54	2nd B	14 years old	relative	71.5	Excellent	2015-2016
55	2nd B	12 years	relative	69.9	Alright	2015-2016
56	2nd B	12 years	relative	68.8	Alright	2015-2016
57	2nd B	15 years old	relative	64.7	Alright	2015-2016
58	2nd B	15 years old	relative	64.2	Alright	2015-2016
59	2nd B	13 years	relative	64.1	Alright	2015-2016
60	2nd B	13 years	relative	63	Alright	2015-2016
61	2nd B	15 years old	relative	62.6	Alright	2015-2016
62	2nd B	14 years old	relative	60.1	Alright	2015-2016
63	2nd B	14 years old	relative	60	Alright	2015-2016
64	2nd B	15 years old	relative	59.5	GOOD	2015-2016
65	2nd B	15 years old	relative	58.8	GOOD	2015-2016
66	2nd B	13 years	relative	58.7	GOOD	2015-2016
67	2nd B	14 years old	relative	57.7	GOOD	2015-2016
68	2nd B	14 years old	relative	55.9	GOOD	2015-2016
69	2nd B	12 years	relative	55.8	GOOD	2015-2016
70	2nd B	13 years	relative	62.1	Alright	2015-2016
71	2nd B	15 years old	relative	58.3	GOOD	2015-2016
72	2nd B	12 years	relative	58.2	GOOD	2015-2016
73	2nd B	13 years	relative	57.6	GOOD	2015-2016
74	2nd B	15 years old	relative	57.2	GOOD	2015-2016
75	2nd B	13 years	relative	57.1	GOOD	2015-2016
76	2nd B	15 years old	relative	57	GOOD	2015-2016
77	2nd B	13 years	relative	56.4	GOOD	2015-2016
78	2nd B	15 years old	relative	56.2	GOOD	2015-2016
79	2nd B	13 years	relative	55.3	GOOD	2015-2016
80	2nd B	14 years old	relative	54.5	GOOD	2015-2016
81	2nd B	14 years old	relative	54.4	GOOD	2015-2016

82	2nd B	15 years old	relative	54	GOOD	2015-2016
83	2nd B	15 years old	relative	53.4	GOOD	2015-2016
84	2nd C	13 years	relative	53.2	GOOD	2015-2016
85	2nd C	15 years old	relative	52.5	GOOD	2015-2016
86	2nd C	13 years	relative	52.3	GOOD	2015-2016
87	2nd C	15 years old	relative	51.7	GOOD	2015-2016
88	2nd C	13 years	relative	51.1	GOOD	2015-2016
89	2nd C	14 years old	relative	50	GOOD	2015-2016
90	2nd C	13 years	relative	50	GOOD	2015-2016
91	2nd C	12 years	relative	50.1	Weak	2015-2016
92	2nd C	13 years	relative	50	Weak	2015-2016
93	2nd C	15 years old	relative	80.1	Excellent	2015-2016
94	2nd C	13 years	relative	75.4	Excellent	2015-2016
95	2nd C	13 years	relative	75.1	Excellent	2015-2016
96	2nd C	14 years old	relative	72.9	Excellent	2015-2016
97	2nd C	14 years old	relative	69.7	Alright	2015-2016
98	2nd C	12 years	relative	67.3	Alright	2015-2016
99	2nd C	13 years	relative	65.4	Alright	2015-2016
100	2nd C	13 years	relative	62.2	Alright	2015-2016
101	2nd C	12 years	relative	61	Alright	2015-2016
102	2nd C	12 years	relative	59.5	GOOD	2015-2016
103	2nd C	14 years old	relative	59.3	GOOD	2015-2016
104	2nd C	13 years	relative	55.9	GOOD	2015-2016
105	2nd C	13 years	relative	63.2	Alright	2015-2016
106	2nd C	14 years old	relative	62.6	Alright	2015-2016
107	2nd C	12 years	relative	57.4	GOOD	2015-2016
108	2nd C	13 years	relative	56.5	GOOD	2015-2016
109	2nd C	13 years	relative	56.2	GOOD	2015-2016
110	2nd C	13 years	relative	54.5	GOOD	2015-2016
111	2nd C	12 years	relative	53.8	GOOD	2015-2016
112	2nd C	15 years old	relative	52.6	GOOD	2015-2016
113	2nd C	13 years	relative	52.6	GOOD	2015-2016
114	2nd C	12 years	relative	52.6	GOOD	2015-2016
115	2nd C	14 years old	relative	52.4	GOOD	2015-2016
116	2nd C	12 years	relative	51.8	GOOD	2015-2016
117	2nd C	13 years	relative	50.8	GOOD	2015-2016
118	2nd C	15 years old	relative	50.8	GOOD	2015-2016
119	2nd C	13 years	relative	50.7	GOOD	2015-2016
120	2nd C	14 years old	relative	50.4	GOOD	2015-2016
121	2nd C	15 years old	relative	50.1	GOOD	2015-2016
122	2nd C	12 years	relative	49.8	Weak	2015-2016
123	2nd A	12 years	relative	49.5	Weak	2015-2016
124	2nd A	13 years	relative	48.9	Weak	2015-2016
125	2nd A	14 years old	relative	48.8	Weak	2015-2016

126	2nd A	12 years	relative	47.6	Weak	2015-2016
127	2nd A	13 years	relative	46.2	Weak	2015-2016
128	2nd A	14 years old	relative	44.4	Weak	2015-2016
129	2nd A	15 years old	relative	43.4	Weak	2015-2016
130	2nd A	13 years	relative	42.9	Weak	2015-2016
131	2nd A	15 years old	relative	39.2	Weak	2015-2016
132	2nd A	13 years	relative	39	Weak	2015-2016
133	2nd A	14 years old	relative	34.7	Weak	2015-2016
134	2nd A	14 years old	relative	36.5	Weak	2015-2016
135	2nd A	14 years old	relative	85.3	Excellent	2016-2017
136	2nd A	14 years old	relative	83.1	Excellent	2016-2017
137	2nd A	14 years old	relative	81.2	Excellent	2016-2017
138	2nd A	14 years old	relative	80.2	Excellent	2016-2017
139	2nd A	13 years	relative	77.6	Excellent	2016-2017
140	2nd A	15 years old	relative	72.9	Excellent	2016-2017
141	2nd A	13 years	relative	72.3	Excellent	2016-2017
142	2nd A	15 years old	relative	71.7	Excellent	2016-2017
143	2nd A	14 years old	relative	71.4	Excellent	2016-2017
144	2nd A	14 years old	relative	70.5	Excellent	2016-2017
145	2nd A	12 years	relative	69.8	Alright	2016-2017
146	2nd A	12 years	relative	68.7	Alright	2016-2017
147	2nd A	15 years old	relative	68.3	Alright	2016-2017
148	2nd A	15 years old	relative	67.6	Alright	2016-2017
149	2nd A	13 years	relative	67.4	Alright	2016-2017
150	2nd A	13 years	relative	67.2	Alright	2016-2017
151	2nd A	15 years old	relative	67	Alright	2016-2017
152	2nd A	14 years old	relative	65.5	Alright	2016-2017
153	2nd A	14 years old	relative	65.5	Alright	2016-2017
154	2nd A	15 years old	relative	65.5	Alright	2016-2017
155	2nd A	15 years old	relative	65.4	Alright	2016-2017
156	2nd A	13 years	relative	63.9	Alright	2016-2017
157	2nd A	14 years old	relative	63.7	Alright	2016-2017
158	2nd A	14 years old	relative	62.7	Alright	2016-2017
159	2nd A	12 years	relative	62.5	Alright	2016-2017
160	2nd A	13 years	relative	61.5	Alright	2016-2017
161	2nd A	15 years old	relative	59.5	GOOD	2016-2017
162	2nd A	12 years	relative	59.5	GOOD	2016-2017
163	2nd A	13 years	relative	58.9	GOOD	2016-2017
164	2nd A	15 years old	relative	58.8	GOOD	2016-2017
165	2nd A	13 years	relative	58.4	GOOD	2016-2017
166	2nd A	15 years old	relative	57.7	GOOD	2016-2017
167	2nd A	13 years	relative	60.1	Alright	2016-2017
168	2nd A	15 years old	relative	55.8	GOOD	2016-2017
169	2nd A	13 years	relative	55.7	GOOD	2016-2017

170	2nd A	14 years old	relative	54.9	GOOD	2016-2017
171	2nd B	14 years old	relative	54.2	GOOD	2016-2017
172	2nd B	15 years old	relative	53.9	GOOD	2016-2017
173	2nd B	15 years old	relative	53.4	GOOD	2016-2017
174	2nd B	13 years	relative	52.7	GOOD	2016-2017
175	2nd B	15 years old	relative	51.6	GOOD	2016-2017
176	2nd B	13 years	relative	47.1	Weak	2016-2017
177	2nd B	15 years old	relative	43	Weak	2016-2017
178	2nd B	13 years	relative	42.6	Weak	2016-2017
179	2nd B	14 years old	relative	68	Alright	2016-2017
180	2nd B	13 years	relative	66.5	Alright	2016-2017
181	2nd B	12 years	relative	66.4	Alright	2016-2017
182	2nd B	13 years	relative	65.5	Alright	2016-2017
183	2nd B	15 years old	relative	64.9	Alright	2016-2017
184	2nd B	13 years	relative	64.8	Alright	2016-2017
185	2nd B	13 years	relative	64.2	Alright	2016-2017
186	2nd B	14 years old	relative	64.1	Alright	2016-2017
187	2nd B	14 years old	relative	63.5	Alright	2016-2017
188	2nd B	12 years	relative	63	Alright	2016-2017
189	2nd B	13 years	relative	62.8	Alright	2016-2017
190	2nd B	13 years	relative	62.6	Alright	2016-2017
191	2nd B	12 years	relative	62.2	Alright	2016-2017
192	2nd B	12 years	relative	62.1	Alright	2016-2017
193	2nd B	14 years old	relative	61.9	Alright	2016-2017
194	2nd B	13 years	relative	61.5	Alright	2016-2017
195	2nd B	13 years	relative	61.1	Alright	2016-2017
196	2nd B	14 years old	relative	59.7	GOOD	2016-2017
197	2nd B	12 years	relative	59.3	GOOD	2016-2017
198	2nd B	13 years	relative	59	GOOD	2016-2017
199	2nd B	13 years	relative	58.1	GOOD	2016-2017
200	2nd B	13 years	relative	55.3	GOOD	2016-2017
201	2nd B	12 years	relative	61.9	Alright	2016-2017
202	2nd B	15 years old	relative	59.4	GOOD	2016-2017
203	2nd B	13 years	relative	59.1	GOOD	2016-2017
204	2nd B	12 years	relative	58.5	GOOD	2016-2017
205	2nd B	14 years old	relative	58.1	GOOD	2016-2017
206	2nd B	12 years	relative	57.4	GOOD	2016-2017
207	2nd B	13 years	relative	56.9	GOOD	2016-2017
208	2nd B	15 years old	relative	53	GOOD	2016-2017
209	2nd B	13 years	relative	52.2	GOOD	2016-2017
210	2nd B	14 years old	relative	51.8	GOOD	2016-2017
211	2nd B	15 years old	relative	51.2	GOOD	2016-2017
212	2nd B	12 years	relative	51.1	GOOD	2016-2017
213	2nd B	12 years	relative	50.3	GOOD	2016-2017

214	2nd B	13 years	relative	49.9	Weak	2016-2017
215	2nd C	14 years old	relative	48.2	Weak	2016-2017
216	2nd C	12 years	relative	47.2	Weak	2016-2017
217	2nd C	13 years	relative	43.5	Weak	2016-2017
218	2nd C	14 years old	relative	65.7	Alright	2016-2017
219	2nd C	15 years old	relative	63.9	Alright	2016-2017
220	2nd C	13 years	relative	63.4	Alright	2016-2017
221	2nd C	15 years old	relative	63.3	Alright	2016-2017
222	2nd C	13 years	relative	62.6	Alright	2016-2017
223	2nd C	14 years old	relative	61.3	Alright	2016-2017
224	2nd C	14 years old	relative	63.3	Alright	2016-2017
225	2nd C	14 years old	relative	60.5	Alright	2016-2017
226	2nd C	14 years old	relative	59.6	GOOD	2016-2017
227	2nd C	14 years old	relative	57.7	GOOD	2016-2017
228	2nd C	14 years old	relative	57.5	GOOD	2016-2017
229	2nd C	13 years	relative	56.9	GOOD	2016-2017
230	2nd C	15 years old	relative	56.2	GOOD	2016-2017
231	2nd C	13 years	relative	55.9	GOOD	2016-2017
232	2nd C	15 years old	relative	55.5	GOOD	2016-2017
233	2nd C	14 years old	relative	62.6	Alright	2016-2017
234	2nd C	14 years old	relative	59.9	GOOD	2016-2017
235	2nd C	12 years	relative	59.3	GOOD	2016-2017
236	2nd C	12 years	relative	57.5	GOOD	2016-2017
237	2nd C	15 years old	relative	57.2	GOOD	2016-2017
238	2nd C	15 years old	relative	57	GOOD	2016-2017
239	2nd C	13 years	relative	56.3	GOOD	2016-2017
240	2nd C	13 years	relative	56.2	GOOD	2016-2017
241	2nd C	15 years old	relative	56	GOOD	2016-2017
242	2nd C	14 years old	relative	55.1	GOOD	2016-2017
243	2nd C	14 years old	relative	54.6	GOOD	2016-2017
244	2nd C	15 years old	relative	54.5	GOOD	2016-2017
245	2nd C	15 years old	relative	54.4	GOOD	2016-2017
246	2nd C	13 years	relative	54.3	GOOD	2016-2017
247	2nd C	14 years old	relative	53	GOOD	2016-2017
248	2nd C	14 years old	relative	53	GOOD	2016-2017
249	2nd C	12 years	relative	52.5	GOOD	2016-2017
250	2nd C	13 years	relative	51.7	GOOD	2016-2017
251	2nd C	15 years old	relative	49.3	Weak	2016-2017
252	2nd C	12 years	relative	48.9	Weak	2016-2017
253	2nd C	13 years	relative	48.6	Weak	2016-2017
254	2nd C	15 years old	relative	47.6	Weak	2016-2017
255	2nd C	13 years	relative	47.3	Weak	2016-2017
256	2nd C	15 years old	relative	46.7	Weak	2016-2017
257	8th A	13 years	relative	81.7	Excellent	2017-2018

258	8th A	15 years old	relative	71.7	Excellent	2017-2018
259	8th A	13 years	relative	71.5	Excellent	2017-2018
260	8th A	14 years old	relative	69.4	Alright	2017-2018
261	8th A	14 years old	relative	69	Alright	2017-2018
262	8th A	15 years old	relative	68.4	Alright	2017-2018
263	8th A	15 years old	relative	65.7	Alright	2017-2018
264	8th A	13 years	relative	65.3	Alright	2017-2018
265	8th A	15 years old	relative	60.8	Alright	2017-2018
266	8th A	13 years	relative	68	Alright	2017-2018
267	8th A	15 years old	relative	64	Alright	2017-2018
268	8th A	13 years	relative	60.9	Alright	2017-2018
269	8th A	14 years old	relative	60.1	Alright	2017-2018
270	8th A	13 years	relative	57.3	GOOD	2017-2018
271	8th A	12 years	relative	57.2	GOOD	2017-2018
272	8th A	13 years	relative	56.8	GOOD	2017-2018
273	8th A	15 years old	relative	55.8	GOOD	2017-2018
274	8th A	13 years	relative	55.5	GOOD	2017-2018
275	8th A	13 years	relative	53.8	GOOD	2017-2018
276	8th A	14 years old	relative	53.8	GOOD	2017-2018
277	8th A	14 years old	relative	53.6	GOOD	2017-2018
278	8th A	12 years	relative	53	GOOD	2017-2018
279	8th A	13 years	relative	52.6	GOOD	2017-2018
280	8th A	13 years	relative	52.3	GOOD	2017-2018
281	8th A	12 years	relative	51.9	GOOD	2017-2018
282	8th A	12 years	relative	51.7	GOOD	2017-2018
283	8th A	14 years old	relative	51.1	GOOD	2017-2018
284	8th A	13 years	relative	50.4	GOOD	2017-2018
285	8th A	13 years	relative	50.1	GOOD	2017-2018
286	8th A	14 years old	relative	50	GOOD	2017-2018
287	8th A	12 years	relative	48.3	Weak	2017-2018
288	8th A	13 years	relative	48.3	Weak	2017-2018
289	8th A	13 years	relative	48.2	Weak	2017-2018
290	8th A	13 years	relative	47.2	Weak	2017-2018
291	8th A	12 years	relative	47.1	Weak	2017-2018
292	8th A	15 years old	relative	47.1	Weak	2017-2018
293	8th A	13 years	relative	46.3	Weak	2017-2018
294	8th A	12 years	relative	46.1	Weak	2017-2018
295	8th A	14 years old	relative	45.8	Weak	2017-2018
296	8th A	12 years	relative	45.6	Weak	2017-2018
297	8th A	13 years	relative	45.1	Weak	2017-2018
298	8th A	15 years old	relative	43.8	Weak	2017-2018
299	8th A	13 years	relative	43	Weak	2017-2018
300	8th B	14 years old	relative	82.5	Excellent	2017-2018
301	8th B	15 years old	relative	78.5	Excellent	2017-2018

302	8th B	12 years	relative	76.4	Excellent	2017-2018
303	8th B	12 years	relative	74.4	Excellent	2017-2018
304	8th B	13 years	relative	74.3	Excellent	2017-2018
305	8th B	14 years old	relative	69.6	Alright	2017-2018
306	8th B	12 years	relative	68.8	Alright	2017-2018
307	8th B	13 years	relative	68.6	Alright	2017-2018
308	8th B	14 years old	relative	66.3	Alright	2017-2018
309	8th B	15 years old	relative	61.4	Alright	2017-2018
310	8th B	13 years	relative	60.2	Alright	2017-2018
311	8th B	15 years old	relative	59.3	GOOD	2017-2018
312	8th B	13 years	relative	57.7	GOOD	2017-2018
313	8th B	14 years old	relative	61.4	Alright	2017-2018
314	8th B	14 years old	relative	59.6	GOOD	2017-2018
315	8th B	14 years old	relative	59.3	GOOD	2017-2018
316	8th B	14 years old	relative	58.4	GOOD	2017-2018
317	8th B	14 years old	relative	57.5	GOOD	2017-2018
318	8th B	14 years old	relative	56.6	GOOD	2017-2018
319	8th B	13 years	relative	55.4	GOOD	2017-2018
320	8th B	15 years old	relative	53.3	GOOD	2017-2018
321	8th B	13 years	relative	51.6	GOOD	2017-2018
322	8th B	15 years old	relative	51.4	GOOD	2017-2018
323	8th B	14 years old	relative	51.1	GOOD	2017-2018
324	8th B	14 years old	relative	50.6	GOOD	2017-2018
325	8th B	12 years	relative	50.5	GOOD	2017-2018
326	8th B	12 years	relative	50.3	GOOD	2017-2018
327	8th B	15 years old	relative	49.5	Weak	2017-2018
328	8th B	15 years old	relative	49.4	Weak	2017-2018
329	8th B	13 years	relative	48.9	Weak	2017-2018
330	8th B	13 years	relative	48.9	Weak	2017-2018
331	8th B	15 years old	relative	48.4	Weak	2017-2018
332	8th B	14 years old	relative	48.3	Weak	2017-2018
333	8th B	14 years old	relative	48.2	Weak	2017-2018
334	8th B	15 years old	relative	47.5	Weak	2017-2018
335	8th B	15 years old	relative	47.1	Weak	2017-2018
336	8th B	13 years	relative	46.6	Weak	2017-2018
337	8th B	14 years old	relative	46	Weak	2017-2018
338	8th B	14 years old	relative	43.4	Weak	2017-2018
339	8th B	12 years	relative	42.1	Weak	2017-2018
340	8th B	13 years	relative	40.7	Weak	2017-2018
341	8th B	15 years old	relative	35.5	Weak	2017-2018
342	8th B	12 years	relative	46.2	Weak	2017-2018
343	8th B	13 years	relative	43.1	Weak	2017-2018
344	8th C	15 years old	relative	89.1	Excellent	2017-2018
345	8th C	13 years	relative	87.4	Excellent	2017-2018

346	8th C	15 years old	relative	80.8	Excellent	2017-2018
347	8th C	13 years	relative	76.4	Excellent	2017-2018
348	8th C	15 years old	relative	75.3	Excellent	2017-2018
349	8th C	13 years	relative	73.1	Excellent	2017-2018
350	8th C	14 years old	relative	72.7	Excellent	2017-2018
351	8th C	14 years old	relative	72.4	Excellent	2017-2018
352	8th C	15 years old	relative	66.1	Alright	2017-2018
353	8th C	15 years old	relative	66	Alright	2017-2018
354	8th C	13 years	relative	64	Alright	2017-2018
355	8th C	15 years old	relative	62.6	Alright	2017-2018
356	8th C	13 years	relative	62.6	Alright	2017-2018
357	8th C	15 years old	relative	61.4	Alright	2017-2018
358	8th C	13 years	relative	61.2	Alright	2017-2018
359	8th C	14 years old	relative	59.1	GOOD	2017-2018
360	8th C	13 years	relative	57.7	GOOD	2017-2018
361	8th C	12 years	relative	55.3	GOOD	2017-2018
362	8th C	13 years	relative	59.3	GOOD	2017-2018
363	8th C	15 years old	relative	57.7	GOOD	2017-2018
364	8th C	13 years	relative	56	GOOD	2017-2018
365	8th C	13 years	relative	55.1	GOOD	2017-2018
366	8th C	14 years old	relative	55.1	GOOD	2017-2018
367	8th C	14 years old	relative	54.4	GOOD	2017-2018
368	8th C	12 years	relative	52.4	GOOD	2017-2018
369	8th C	13 years	relative	52.2	GOOD	2017-2018
370	8th C	13 years	relative	50.9	GOOD	2017-2018
371	8th C	12 years	relative	50.6	GOOD	2017-2018
372	8th C	12 years	relative	50.5	GOOD	2017-2018
373	8th C	14 years old	relative	50.3	GOOD	2017-2018
374	8th C	13 years	relative	50	GOOD	2017-2018
375	8th C	13 years	relative	48.4	Weak	2017-2018
376	8th C	14 years old	relative	48.4	Weak	2017-2018
377	8th C	12 years	relative	47.2	Weak	2017-2018
378	8th C	13 years	relative	46.6	Weak	2017-2018
379	8th C	13 years	relative	43.9	Weak	2017-2018
380	8th A	13 years	Free	84.5	Excellent	2018-2019
381	8th A	12 years	Free	80.2	Excellent	2018-2019
382	8th A	15 years old	Free	79.9	Excellent	2018-2019
383	8th A	13 years	Free	77	Excellent	2018-2019
384	8th A	12 years	Free	76.9	Excellent	2018-2019
385	8th A	14 years old	Free	71.6	Excellent	2018-2019
386	8th A	12 years	Free	70.8	Excellent	2018-2019
387	8th A	13 years	Free	70.6	Excellent	2018-2019
388	8th A	15 years old	Free	69.3	Alright	2018-2019
389	8th A	13 years	Free	69.1	Alright	2018-2019

390	8th A	14 years old	Free	65.9	Alright	2018-2019
391	8th A	15 years old	Free	64.1	Alright	2018-2019
392	8th A	12 years	Free	62.6	Alright	2018-2019
393	8th A	12 years	Free	62.4	Alright	2018-2019
394	8th A	13 years	Free	61.1	Alright	2018-2019
395	8th A	14 years old	Free	60.7	Alright	2018-2019
396	8th A	12 years	Free	58.2	GOOD	2018-2019
397	8th A	13 years	Free	65.8	Alright	2018-2019
398	8th A	14 years old	Free	63.2	Alright	2018-2019
399	8th A	15 years old	Free	61.9	Alright	2018-2019
400	8th A	13 years	Free	60.7	Alright	2018-2019
401	8th A	15 years old	Free	59.7	GOOD	2018-2019
402	8th A	13 years	Free	59.2	GOOD	2018-2019
403	8th A	14 years old	Free	58.5	GOOD	2018-2019
404	8th A	14 years old	Free	57.3	GOOD	2018-2019
405	8th A	14 years old	Free	57.1	GOOD	2018-2019
406	8th A	14 years old	Free	56.8	GOOD	2018-2019
407	8th A	14 years old	Free	56.5	GOOD	2018-2019
408	8th A	14 years old	Free	56.3	GOOD	2018-2019
409	8th A	13 years	Free	56.2	GOOD	2018-2019
410	8th A	15 years old	Free	55.7	GOOD	2018-2019
411	8th A	13 years	Free	54.1	GOOD	2018-2019
412	8th A	15 years old	Free	51.5	GOOD	2018-2019
413	8th A	14 years old	Free	55.9	GOOD	2018-2019
414	8th A	14 years old	Free	49.8	Weak	2018-2019
415	8th A	12 years	Free	45.9	Weak	2018-2019
416	8th A	12 years	Free	45.4	Weak	2018-2019
417	8th A	15 years old	Free	39.1	Weak	2018-2019
418	8th B	15 years old	Free	85.7	Excellent	2018-2019
419	8th B	13 years	Free	82.4	Excellent	2018-2019
420	8th B	13 years	Free	80.8	Excellent	2018-2019
421	8th B	15 years old	Free	79.2	Excellent	2018-2019
422	8th B	14 years old	Free	79.2	Excellent	2018-2019
423	8th B	14 years old	Free	78.1	Excellent	2018-2019
424	8th B	15 years old	Free	67.7	Alright	2018-2019
425	8th B	15 years old	Free	66.4	Alright	2018-2019
426	8th B	13 years	Free	65.2	Alright	2018-2019
427	8th B	14 years old	Free	65	Alright	2018-2019
428	8th B	14 years old	Free	64.3	Alright	2018-2019
429	8th B	12 years	Free	63.8	Alright	2018-2019
430	8th B	13 years	Free	62	Alright	2018-2019
431	8th B	15 years old	Free	61.8	Alright	2018-2019
432	8th B	12 years	Free	60.6	Alright	2018-2019
433	8th B	13 years	Free	60.6	Alright	2018-2019

434	8th B	15 years old	Free	60	Alright	2018-2019
435	8th B	13 years	Free	59.9	GOOD	2018-2019
436	8th B	15 years old	Free	56.6	GOOD	2018-2019
437	8th B	13 years	Free	62.4	Alright	2018-2019
438	8th B	15 years old	Free	62.1	Alright	2018-2019
439	8th B	13 years	Free	61.8	Alright	2018-2019
440	8th B	14 years old	Free	61.3	Alright	2018-2019
441	8th B	14 years old	Free	59.5	GOOD	2018-2019
442	8th B	15 years old	Free	57.5	GOOD	2018-2019
443	8th B	15 years old	Free	57.4	GOOD	2018-2019
444	8th B	13 years	Free	55.4	GOOD	2018-2019
445	8th B	15 years old	Free	55.3	GOOD	2018-2019
446	8th B	13 years	Free	55	GOOD	2018-2019
447	8th B	15 years old	Free	54.7	GOOD	2018-2019
448	8th B	13 years	Free	53.3	GOOD	2018-2019
449	8th B	14 years old	Free	52.9	GOOD	2018-2019
450	8th B	13 years	Free	52.5	GOOD	2018-2019
451	8th B	12 years	Free	52.5	GOOD	2018-2019
452	8th B	13 years	Free	50.7	GOOD	2018-2019
453	8th B	15 years old	Free	50.5	GOOD	2018-2019
454	8th B	13 years	Free	47.9	Weak	2018-2019
455	8th C	13 years	Free	85.8	Excellent	2018-2019
456	8th C	14 years old	Free	82.2	Excellent	2018-2019
457	8th C	14 years old	Free	77.8	Excellent	2018-2019
458	8th C	12 years	Free	73.6	Excellent	2018-2019
459	8th C	13 years	Free	72.2	Excellent	2018-2019
460	8th C	13 years	Free	71.5	Excellent	2018-2019
461	8th C	12 years	Free	70.1	Excellent	2018-2019
462	8th C	12 years	Free	65.6	Alright	2018-2019
463	8th C	14 years old	Free	65.4	Alright	2018-2019
464	8th C	13 years	Free	64.5	Alright	2018-2019
465	8th C	13 years	Free	62.9	Alright	2018-2019
466	8th C	14 years old	Free	62.4	Alright	2018-2019
467	8th C	12 years	Free	58.8	GOOD	2018-2019
468	8th C	13 years	Free	58.1	GOOD	2018-2019
469	8th C	13 years	Free	57.8	GOOD	2018-2019
470	8th C	13 years	Free	57.7	GOOD	2018-2019
471	8th C	12 years	Free	56.8	GOOD	2018-2019
472	8th C	15 years old	Free	56.8	GOOD	2018-2019
473	8th C	13 years	Free	55.9	GOOD	2018-2019
474	8th C	12 years	Free	55.4	GOOD	2018-2019
475	8th C	14 years old	Free	53.7	GOOD	2018-2019
476	8th C	12 years	Free	53.5	GOOD	2018-2019
477	8th C	13 years	Free	51.5	GOOD	2018-2019

478	8th C	15 years old	Free	51.4	GOOD	2018-2019
479	8th C	13 years	Free	51.2	GOOD	2018-2019
480	8th C	14 years old	Free	51	GOOD	2018-2019
481	8th C	15 years old	Free	50.7	GOOD	2018-2019
482	8th C	12 years	Free	50.7	Weak	2018-2019
483	8th C	12 years	Free	49.1	Weak	2018-2019
484	8th C	13 years	Free	48.1	Weak	2018-2019
485	8th C	14 years old	Free	47	Weak	2018-2019
486	8th C	12 years	Free	46	Weak	2018-2019
487	8th C	13 years	Free	44.6	Weak	2018-2019
488	8th C	14 years old	Free	30.7	Weak	2018-2019
489	8th A	15 years old	Free/COVID-19	81	Excellent	2019-2020
490	8th A	13 years	Free/COVID-19	77.8	Excellent	2019-2020
491	8th A	15 years old	Free/COVID-19	77.5	Excellent	2019-2020
492	8th A	13 years	Free/COVID-19	77.2	Excellent	2019-2020
493	8th A	14 years old	Free/COVID-19	77	Excellent	2019-2020
494	8th A	14 years old	Free/COVID-19	73.3	Excellent	2019-2020
495	8th A	14 years old	Free/COVID-19	72.4	Excellent	2019-2020
496	8th A	14 years old	Free/COVID-19	71.6	Excellent	2019-2020
497	8th A	14 years old	Free/COVID-19	69.8	Alright	2019-2020
498	8th A	14 years old	Free/COVID-19	69.6	Alright	2019-2020
499	8th A	13 years	Free/COVID-19	68.4	Alright	2019-2020
500	8th A	15 years old	Free/COVID-19	68.3	Alright	2019-2020
501	8th A	13 years	Free/COVID-19	68.1	Alright	2019-2020
502	8th A	15 years old	Free/COVID-19	65.8	Alright	2019-2020
503	8th A	14 years old	Free/COVID-19	65.6	Alright	2019-2020
504	8th A	14 years old	Free/COVID-19	64.5	Alright	2019-2020
505	8th A	12 years	Free/COVID-19	64.2	Alright	2019-2020
506	8th A	12 years	Free/COVID-19	63.9	Alright	2019-2020
507	8th A	15 years old	Free/COVID-19	62.4	Alright	2019-2020
508	8th A	15 years old	Free/COVID-19	61.3	Alright	2019-2020
509	8th A	13 years	Free/COVID-19	60.5	Alright	2019-2020
510	8th A	13 years	Free/COVID-19	59.6	GOOD	2019-2020
511	8th A	15 years old	Free/COVID-19	59.3	GOOD	2019-2020
512	8th A	14 years old	Free/COVID-19	58.8	GOOD	2019-2020
513	8th A	14 years old	Free/COVID-19	58.2	GOOD	2019-2020
514	8th A	15 years old	Free/COVID-19	56.6	GOOD	2019-2020
515	8th A	15 years old	Free/COVID-19	56.4	GOOD	2019-2020
516	8th A	13 years	Free/COVID-19	55.5	GOOD	2019-2020
517	8th A	14 years old	Free/COVID-19	55.4	GOOD	2019-2020
518	8th A	14 years old	Free/COVID-19	55.1	GOOD	2019-2020
519	8th A	12 years	Free/COVID-19	54.2	GOOD	2019-2020
520	8th A	13 years	Free/COVID-19	53	GOOD	2019-2020
521	8th A	15 years old	Free/COVID-19	52.8	GOOD	2019-2020

522	8th A	12 years	Free/COVID-19	51.3	GOOD	2019-2020
523	8th A	13 years	Free/COVID-19	50.7	GOOD	2019-2020
524	8th A	15 years old	Free/COVID-19	50.6	GOOD	2019-2020
525	8th A	13 years	Free/COVID-19	50.2	GOOD	2019-2020
526	8th A	15 years old	Free/COVID-19	48.1	Weak	2019-2020
527	8th A	13 years	Free/COVID-19	45.9	Weak	2019-2020
528	8th A	15 years old	Free/COVID-19	36.3	Weak	2019-2020
529	8th B	13 years	Free/COVID-19	71.7	Excellent	2019-2020
530	8th B	14 years old	Free/COVID-19	71.7	Excellent	2019-2020
531	8th B	14 years old	Free/COVID-19	71.4	Excellent	2019-2020
532	8th B	15 years old	Free/COVID-19	69	Alright	2019-2020
533	8th B	15 years old	Free/COVID-19	66.9	Alright	2019-2020
534	8th B	13 years	Free/COVID-19	64.7	Alright	2019-2020
535	8th B	15 years old	Free/COVID-19	63.5	Alright	2019-2020
536	8th B	13 years	Free/COVID-19	62.3	Alright	2019-2020
537	8th B	15 years old	Free/COVID-19	62.2	Alright	2019-2020
538	8th B	13 years	Free/COVID-19	61.2	Alright	2019-2020
539	8th B	14 years old	Free/COVID-19	59.5	GOOD	2019-2020
540	8th B	13 years	Free/COVID-19	58.6	GOOD	2019-2020
541	8th B	12 years	Free/COVID-19	57.6	GOOD	2019-2020
542	8th B	13 years	Free/COVID-19	56.6	GOOD	2019-2020
543	8th B	15 years old	Free/COVID-19	56.2	GOOD	2019-2020
544	8th B	13 years	Free/COVID-19	55.9	GOOD	2019-2020
545	8th B	13 years	Free/COVID-19	54.6	GOOD	2019-2020
546	8th B	14 years old	Free/COVID-19	53.7	GOOD	2019-2020
547	8th B	14 years old	Free/COVID-19	53.7	GOOD	2019-2020
548	8th B	12 years	Free/COVID-19	53.6	GOOD	2019-2020
549	8th B	13 years	Free/COVID-19	53	GOOD	2019-2020
550	8th B	13 years	Free/COVID-19	52.9	GOOD	2019-2020
551	8th B	12 years	Free/COVID-19	52	GOOD	2019-2020
552	8th B	12 years	Free/COVID-19	50.7	GOOD	2019-2020
553	8th B	14 years old	Free/COVID-19	49	Weak	2019-2020
554	8th B	13 years	Free/COVID-19	48.8	Weak	2019-2020
555	8th B	13 years	Free/COVID-19	48.7	Weak	2019-2020
556	8th B	14 years old	Free/COVID-19	48.3	Weak	2019-2020
557	8th B	12 years	Free/COVID-19	48.2	Weak	2019-2020
558	8th B	13 years	Free/COVID-19	45.8	Weak	2019-2020
559	8th B	13 years	Free/COVID-19	44.4	Weak	2019-2020
560	8th B	13 years	Free/COVID-19	43.8	Weak	2019-2020
561	8th B	12 years	Free/COVID-19	43.1	Weak	2019-2020
562	8th B	15 years old	Free/COVID-19	39.8	Weak	2019-2020
563	8th B	13 years	Free/COVID-19	39.4	Weak	2019-2020
564	8th B	12 years	Free/COVID-19	34.3	Weak	2019-2020
565	8th C	14 years old	Free/COVID-19	80.7	Excellent	2019-2020

566	8th C	12 years	Free/COVID-19	78	Excellent	2019-2020
567	8th C	13 years	Free/COVID-19	77	Excellent	2019-2020
568	8th C	15 years old	Free/COVID-19	70.8	Excellent	2019-2020
569	8th C	13 years	Free/COVID-19	70.5	Excellent	2019-2020
570	8th C	14 years old	Free/COVID-19	70.2	Excellent	2019-2020
571	8th C	15 years old	Free/COVID-19	68.4	Alright	2019-2020
572	8th C	12 years	Free/COVID-19	67.5	Alright	2019-2020
573	8th C	12 years	Free/COVID-19	67	Alright	2019-2020
574	8th C	13 years	Free/COVID-19	66.9	Alright	2019-2020
575	8th C	14 years old	Free/COVID-19	66.2	Alright	2019-2020
576	8th C	12 years	Free/COVID-19	66.1	Alright	2019-2020
577	8th C	13 years	Free/COVID-19	65.3	Alright	2019-2020
578	8th C	14 years old	Free/COVID-19	65.1	Alright	2019-2020
579	8th C	15 years old	Free/COVID-19	63.9	Alright	2019-2020
580	8th C	13 years	Free/COVID-19	63.8	Alright	2019-2020
581	8th C	15 years old	Free/COVID-19	63.8	Alright	2019-2020
582	8th C	13 years	Free/COVID-19	62.6	Alright	2019-2020
583	8th C	14 years old	Free/COVID-19	62.2	Alright	2019-2020
584	8th C	14 years old	Free/COVID-19	62.1	Alright	2019-2020
585	8th C	14 years old	Free/COVID-19	61.7	Alright	2019-2020
586	8th C	14 years old	Free/COVID-19	60.9	Alright	2019-2020
587	8th C	14 years old	Free/COVID-19	60.3	Alright	2019-2020
588	8th C	14 years old	Free/COVID-19	59.1	GOOD	2019-2020
589	8th C	13 years	Free/COVID-19	59.1	GOOD	2019-2020
590	8th C	15 years old	Free/COVID-19	58.8	GOOD	2019-2020
591	8th C	13 years	Free/COVID-19	56.6	GOOD	2019-2020
592	8th C	15 years old	Free/COVID-19	56.4	GOOD	2019-2020
593	8th C	14 years old	Free/COVID-19	56.1	GOOD	2019-2020
594	8th C	14 years old	Free/COVID-19	55.7	GOOD	2019-2020
595	8th C	12 years	Free/COVID-19	54	GOOD	2019-2020
596	8th C	12 years	Free/COVID-19	53.9	GOOD	2019-2020
597	8th C	15 years old	Free/COVID-19	52.8	GOOD	2019-2020
598	8th C	15 years old	Free/COVID-19	50	GOOD	2019-2020
599	8th C	13 years	Free/COVID-19	49.3	Weak	2019-2020
600	8th C	13 years	Free/COVID-19	48.7	Weak	2019-2020
601	8th C	15 years old	Free/COVID-19	45.7	Weak	2019-2020
602	8th C	14 years old	Free/COVID-19	44.2	Weak	2019-2020
603	8th C	14 years old	Free/COVID-19	42.1	Weak	2019-2020
604	8th C	15 years old	Free/COVID-19	37.5	Weak	2019-2020
605	8th A	15 years old	Free/COVID-19	86.3	Excellent	2020-2021
606	8th A	13 years	Free/COVID-19	79.1	Excellent	2020-2021
607	8th A	14 years old	Free/COVID-19	76.3	Excellent	2020-2021
608	8th A	14 years old	Free/COVID-19	75	Excellent	2020-2021
609	8th A	12 years	Free/COVID-19	72.8	Excellent	2020-2021

610	8th A	13 years	Free/COVID-19	70	Excellent	2020-2021
611	8th A	15 years old	Free/COVID-19	66	Alright	2020-2021
612	8th A	12 years	Free/COVID-19	63.4	Alright	2020-2021
613	8th A	13 years	Free/COVID-19	66.3	Alright	2020-2021
614	8th A	15 years old	Free/COVID-19	63.9	Alright	2020-2021
615	8th A	13 years	Free/COVID-19	62.9	Alright	2020-2021
616	8th A	15 years old	Free/COVID-19	61.8	Alright	2020-2021
617	8th A	13 years	Free/COVID-19	61.7	Alright	2020-2021
618	8th A	15 years old	Free/COVID-19	59.6	GOOD	2020-2021
619	8th A	13 years	Free/COVID-19	59.9	GOOD	2020-2021
620	8th A	14 years old	Free/COVID-19	59.6	GOOD	2020-2021
621	8th A	14 years old	Free/COVID-19	56.8	GOOD	2020-2021
622	8th A	15 years old	Free/COVID-19	56.1	GOOD	2020-2021
623	8th A	15 years old	Free/COVID-19	55.9	GOOD	2020-2021
624	8th A	13 years	Free/COVID-19	55.8	GOOD	2020-2021
625	8th A	15 years old	Free/COVID-19	55.4	GOOD	2020-2021
626	8th A	13 years	Free/COVID-19	55.2	GOOD	2020-2021
627	8th A	15 years old	Free/COVID-19	55	GOOD	2020-2021
628	8th A	13 years	Free/COVID-19	54.2	GOOD	2020-2021
629	8th A	14 years old	Free/COVID-19	52.5	GOOD	2020-2021
630	8th A	13 years	Free/COVID-19	52.5	GOOD	2020-2021
631	8th A	12 years	Free/COVID-19	52.1	GOOD	2020-2021
632	8th A	13 years	Free/COVID-19	52	GOOD	2020-2021
633	8th A	15 years old	Free/COVID-19	51.5	GOOD	2020-2021
634	8th A	13 years	Free/COVID-19	51.9	Weak	2020-2021
635	8th A	13 years	Free/COVID-19	50.8	Weak	2020-2021
636	8th A	14 years old	Free/COVID-19	50.1	Weak	2020-2021
637	8th A	14 years old	Free/COVID-19	50	Weak	2020-2021
638	8th A	12 years	Free/COVID-19	49.4	Weak	2020-2021
639	8th A	13 years	Free/COVID-19	48.6	Weak	2020-2021
640	8th A	13 years	Free/COVID-19	46.7	Weak	2020-2021
641	8th A	12 years	Free/COVID-19	45.8	Weak	2020-2021
642	8th A	12 years	Free/COVID-19	45.4	Weak	2020-2021
643	8th A	14 years old	Free/COVID-19	44.7	Weak	2020-2021
644	8th A	13 years	Free/COVID-19	44.4	Weak	2020-2021
645	8th A	13 years	Free/COVID-19	44	Weak	2020-2021
646	8th A	14 years old	Free/COVID-19	43.6	Weak	2020-2021
647	8th A	12 years	Free/COVID-19	42.2	Weak	2020-2021
648	8th A	13 years	Free/COVID-19	41.9	Weak	2020-2021
649	8th A	13 years	Free/COVID-19	36.3	Weak	2020-2021
650	8th A	13 years	Free/COVID-19	35.2	Weak	2020-2021
651	8th A	12 years	Free/COVID-19	29.6	Weak	2020-2021
652	8th B	15 years old	Free/COVID-19	79.8	Excellent	2020-2021
653	8th B	13 years	Free/COVID-19	72.9	Excellent	2020-2021

654	8th B	12 years	Free/COVID-19	71.8	Excellent	2020-2021
655	8th B	14 years old	Free/COVID-19	70.4	Excellent	2020-2021
656	8th B	12 years	Free/COVID-19	68.4	Alright	2020-2021
657	8th B	13 years	Free/COVID-19	65.2	Alright	2020-2021
658	8th B	15 years old	Free/COVID-19	64.8	Alright	2020-2021
659	8th B	13 years	Free/COVID-19	64	Alright	2020-2021
660	8th B	14 years old	Free/COVID-19	56	GOOD	2020-2021
661	8th B	15 years old	Free/COVID-19	70	Excellent	2020-2021
662	8th B	12 years	Free/COVID-19	64.4	Alright	2020-2021
663	8th B	12 years	Free/COVID-19	63.8	Alright	2020-2021
664	8th B	13 years	Free/COVID-19	62.1	Alright	2020-2021
665	8th B	14 years old	Free/COVID-19	61.7	Alright	2020-2021
666	8th B	12 years	Free/COVID-19	61.2	Alright	2020-2021
667	8th B	13 years	Free/COVID-19	59.1	GOOD	2020-2021
668	8th B	14 years old	Free/COVID-19	58.9	GOOD	2020-2021
669	8th B	15 years old	Free/COVID-19	58.7	GOOD	2020-2021
670	8th B	13 years	Free/COVID-19	58.6	GOOD	2020-2021
671	8th B	15 years old	Free/COVID-19	56.6	GOOD	2020-2021
672	8th B	13 years	Free/COVID-19	54.8	GOOD	2020-2021
673	8th B	14 years old	Free/COVID-19	53.4	GOOD	2020-2021
674	8th B	14 years old	Free/COVID-19	53.2	GOOD	2020-2021
675	8th B	14 years old	Free/COVID-19	52.5	GOOD	2020-2021
676	8th B	14 years old	Free/COVID-19	52	GOOD	2020-2021
677	8th B	14 years old	Free/COVID-19	51.9	GOOD	2020-2021
678	8th B	14 years old	Free/COVID-19	51.5	GOOD	2020-2021
679	8th B	13 years	Free/COVID-19	50.8	Weak	2020-2021
680	8th B	15 years old	Free/COVID-19	50.7	Weak	2020-2021
681	8th B	13 years	Free/COVID-19	49.9	Weak	2020-2021
682	8th B	15 years old	Free/COVID-19	49.7	Weak	2020-2021
683	8th B	14 years old	Free/COVID-19	48.8	Weak	2020-2021
684	8th B	14 years old	Free/COVID-19	48.6	Weak	2020-2021
685	8th B	12 years	Free/COVID-19	45.7	Weak	2020-2021
691	8th B	15 years old	Free/COVID-19	35.2	Weak	2020-2021
692	8th B	14 years old	Free/COVID-19	31.4	Weak	2020-2021
693	8th C	14 years old	Free/COVID-19	76.2	Excellent	2020-2021
694	8th C	15 years old	Free/COVID-19	70.7	Excellent	2020-2021
695	8th C	15 years old	Free/COVID-19	70.3	Excellent	2020-2021
696	8th C	13 years	Free/COVID-19	66.5	Alright	2020-2021
697	8th C	14 years old	Free/COVID-19	65.9	Alright	2020-2021
698	8th C	14 years old	Free/COVID-19	64	Alright	2020-2021
699	8th C	12 years	Free/COVID-19	59.4	GOOD	2020-2021
700	8th C	13 years	Free/COVID-19	57.8	GOOD	2020-2021
701	8th C	15 years old	Free/COVID-19	69.3	Alright	2020-2021
702	8th C	12 years	Free/COVID-19	65.4	Alright	2020-2021

703	8th C	13 years	Free/COVID-19	62.6	Alright	2020-2021
704	8th C	15 years old	Free/COVID-19	61.7	Alright	2020-2021
705	8th C	13 years	Free/COVID-19	60.4	Alright	2020-2021
706	8th C	15 years old	Free/COVID-19	59.5	GOOD	2020-2021
707	8th C	13 years	Free/COVID-19	59.2	GOOD	2020-2021
708	8th C	15 years old	Free/COVID-19	59.2	GOOD	2020-2021
709	8th C	13 years	Free/COVID-19	58.7	GOOD	2020-2021
710	8th C	14 years old	Free/COVID-19	58.2	GOOD	2020-2021
711	8th C	14 years old	Free/COVID-19	57.4	GOOD	2020-2021
712	8th C	15 years old	Free/COVID-19	57.2	GOOD	2020-2021
713	8th C	15 years old	Free/COVID-19	57.1	GOOD	2020-2021
714	8th C	13 years	Free/COVID-19	57.1	GOOD	2020-2021
715	8th C	15 years old	Free/COVID-19	56.2	GOOD	2020-2021
716	8th C	13 years	Free/COVID-19	56.1	GOOD	2020-2021
717	8th C	15 years old	Free/COVID-19	55.9	GOOD	2020-2021
718	8th C	13 years	Free/COVID-19	54.6	GOOD	2020-2021
719	8th C	14 years old	Free/COVID-19	53.4	GOOD	2020-2021
728	8th C	12 years	Free/COVID-19	45.4	Weak	2020-2021
729	8th C	13 years	Free/COVID-19	45.3	Weak	2020-2021
730	8th C	13 years	Free/COVID-19	45	Weak	2020-2021
731	8th C	12 years	Free/COVID-19	44.3	Weak	2020-2021
732	8th C	12 years	Free/COVID-19	42.9	Weak	2020-2021
733	8th C	14 years old	Free/COVID-19	35.1	Weak	2020-2021
734	8th C	13 years	Free/COVID-19	31	Weak	2020-2021
735	8th C	13 years	Free/COVID-19	26.8	Weak	2020-2021

3. Data mining objectives

The objectives of datamining can be grouped into three important areas [1]:

- **Prediction (What -if)** : consists in predicting the realizations of an event (or a decision), based on the past.
- **Discovery of hidden rules** : discover associative rules, between different events.
- **Confirmation of hypotheses** : confirm or refute the hypotheses proposed by analysts and decision-makers, and provide them with a degree of confidence.

4. Data mining techniques

- Datamining refers to a set of techniques for exploring and analyzing, by automatic or semi-automatic means, a large mass of data with the aim of discovering hidden trends or significant rules (non-trivial, implicit and potentially useful) [1]. Datamining tools are generally based on techniques based on statistics, classification or the extraction of associative rules.

4.1. Type of Datamining Techniques

There are two main types of approaches: predictive techniques and descriptive techniques.

4.1.1. Predictive or supervised techniques

They aim to extrapolate new information from present information and they explain the data. They are used in two types of problems[2]:

− Classification or Discrimination (Decision trees, Neural networks, SVM, etc.): the target variable is qualitative or categorical;

− Regression (Regression Tree, Linear Regression, etc.): the target variable is quantitative discrete or continuous.

4.1.2. Descriptive or unsupervised techniques

They aim to highlight information present but hidden by the volume of data and they reduce, summarize, synthesize the data, where there is no target variable.

They are used in:

− Factor analysis (ACP, ACM, etc.);

− Segmentation or Clustering (K- Means , Dynamic Clusters, CAH, etc.); She is looking for association.

5. Classification by decision tree

We are given a set X of n unlabeled elements x_i whose P attributes are quantitative or qualitative. Each set Y is labelled, i.e. it is associated with a "class" or a "target attribute" that we note y ∈ Y[2].

From these examples, we construct a so-called "decision" tree such as:

− Each node corresponds `to a test on the value of one or more attributes;

− Each branch starting from a node corresponds to one or more values of the test carried out;

− each leaf is associated with a value of the target attribute.

There are several algorithms for building decision trees, namely[3]:

− **ID3** (Iterative Dichotomiser 3): Developed in 1986 by Ross Quinlan . It can be applied only on the nominal characteristics. It is used for ranking.

− **C4.5** : an extension of ID3 by Ross Quinlan . It can be applied to all types of features. It is used for ranking.

− **C5.0** : a commercial extension of C4.5, again by Ross Quinlan , used for grading

− **CART** (Classification And Regression Trees): like C4.5, uses other metrics. Also, the algorithm supports regression.

5.1. Presentation of an algorithm of ID3[4]

Algorithm: ID3 Algorithm

Inputs : R: a set of non-target attributes, C: the attribute, S: training data
Output : returns a decision tree
Beginning
Initialize to empty tree;
If S is empty **then**
Return a simple Fail value node
End if

If S consists only of identical values for the target **then**

Return a single node of this value

End if

If Ris empty **then**

Return a single node with the most frequent value of the target attribute values found in S

End if

D◄ the attribute which has the greatest **Gain (D, S)** among all the attributes of **R**

{ d_j with j=1,2, …, m }◄The values of the attributes of D

{ S_j with j=1,2, …,m} ◄ The subsets of S consisting respectively of records with value dj foattribute D

Return a tree whose root is D and the arcs are labeled by dl, d2, …, dm and going to the subtrees

ID3 (R-{D}, C,), ID3 (R-{D S_1}, C, S_2) , …, ID3 (R-{D}, C, S_m)
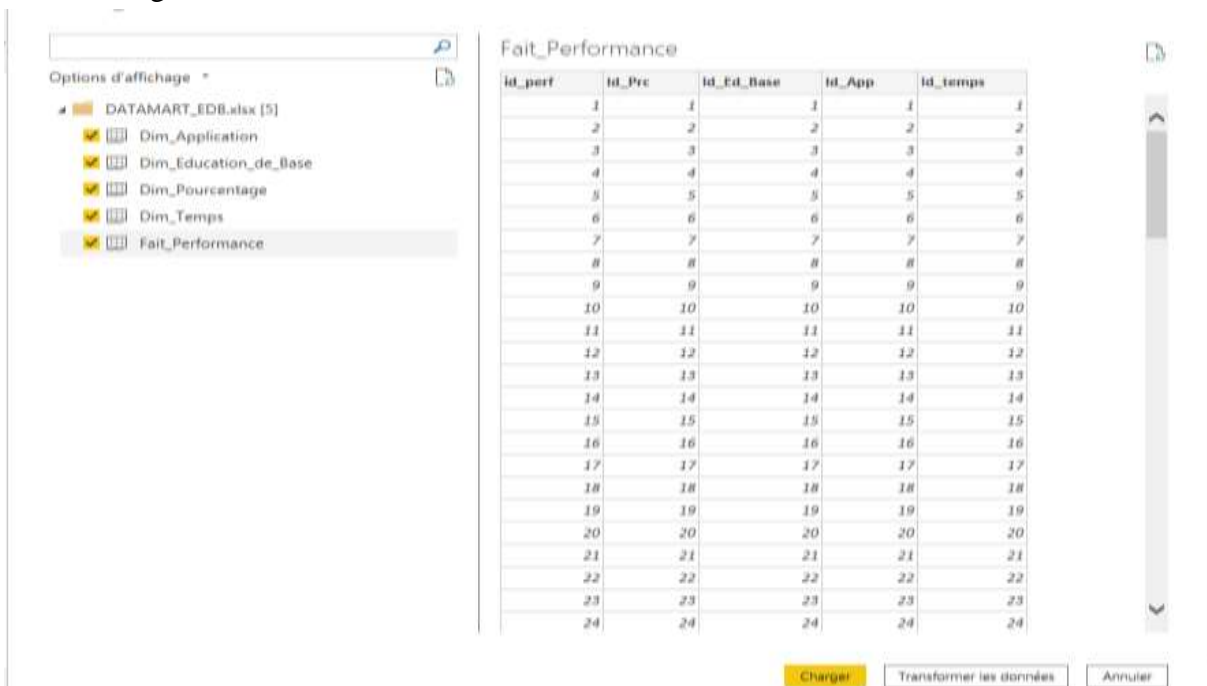
END

6. Data analysis

6.1. Presentation of ETL with the PowerBI(Business Intelligence tool)

At this stage, we are preparing the data found in our Excel data source collected at the Lycée de Kimwenza . This data is extracted using Microsoft PowerBI.

After the extraction phase, we move on to data transformation in order to homogenize them before loading them into the cube. We have extracted, transformed and loaded all the dimensions and that of the fact table as shown in the figure below:[6]

Figure1: Overview of ETL/PowerBI Tool

6.2. Overview of Data Warehouse Structure

The structure of our data warehouse is represented by a star schema of which we have four tables of dimensions with a fact.
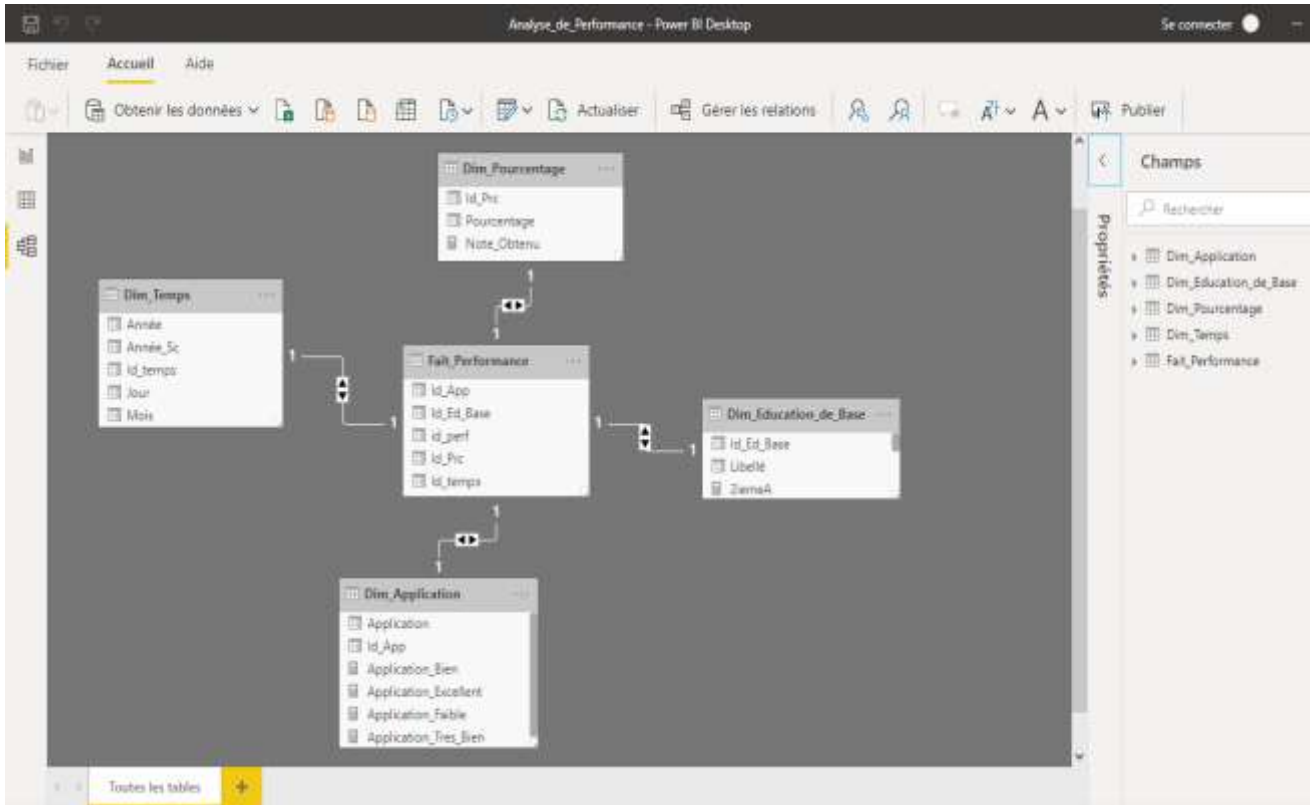
Figure 2: the structure of a data warehouse

7. Presentation and interpretation of results

7.1. Overall situation of learner performance
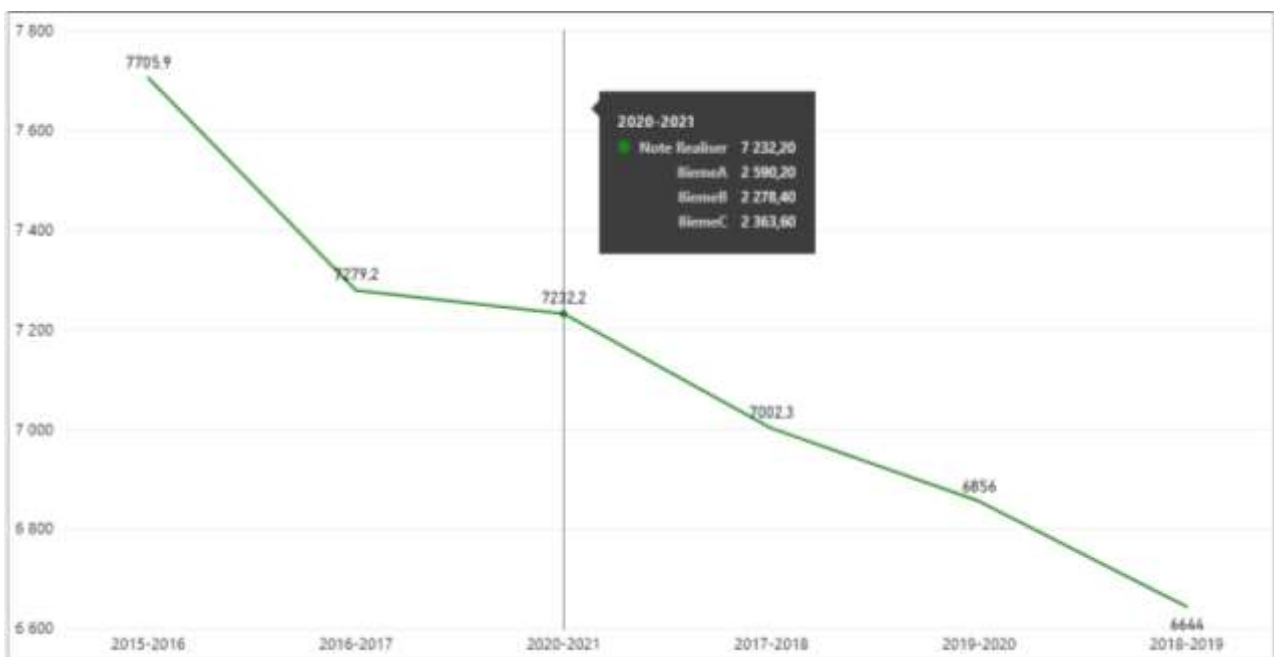
Figure 3: Presentation of the overall situation of learners' application performance

The graph below shows the overall situation of student performance from the 2015-2016 school year to the 2020-2021 school year. It should be remembered that this result has two phases of interpretation: before the arrival on the ground of the situation-based education program starting from the 2015-2016 school year to the year 2016-2017 and upon arrival at from the 2017-2018 to 2020-2021 school year of this program. Each phase is enamelled with the difficulties recorded during the learning process for each school year.

In 2015-2016, the performance of eighth grade students in all 2 nd secondary classes at the Lycée de kimwenza was as follows: 143 students obtained 7705.9, which makes an average of 57.5%, by student for all the second classes of the Orientation Cycle (II ^{ieme}A, II ^{iem}B, II ^{iem}C)

In 2016-2017, 122 students for a total of 7279.2. which makes an average of 59.6% per pupil. There is a slight increase in performance for all students in these classes.

The year 2017-2018 marks the beginning of teaching by situation in Basic Education. With a staff of 123 students for all classes of Eighth (that is to say the classes of second CO changes the name become 8th)and the marks achieved are up to 7002.3for the whole i.e. an average of 56.9% per pupil. Here, the curve drops. This can be justified by the lack of mastery of the approach by situation by the learners and also by the facilitators without forgetting the lack of adequate tools.

In 2018-2019, the 144 students enrolled overall represent 6644, which represents an average of 46.1%. A remarkable drop compared to previous years. This fuck can be explained by the entry of free education into the basic education system. Facilitators once again lose their bonuses and are unmotivated.

The 2019-2020 school year is a year where COVID-19 is present in the country and does not spare the education sector. 119 students are enrolled and realize overall 6854or an average of 57.5% per student. A new hope is reborn despite free education and covid 19. We also think with regard to many of the days of the courses actually attended by the students, the teachers did not have many subjects to objectively evaluate the students. The effectiveness of the situational approach is beginning to show its effects.

The 2020-2021 school year, 131 registered to obtain overall 7232.2, an average of 55.2%. In this period, the second wave of covid 19 is raging, there is also free education and the situation-based approach. The performances of last years are not acquired for this year because its performances do not reflect the objective.
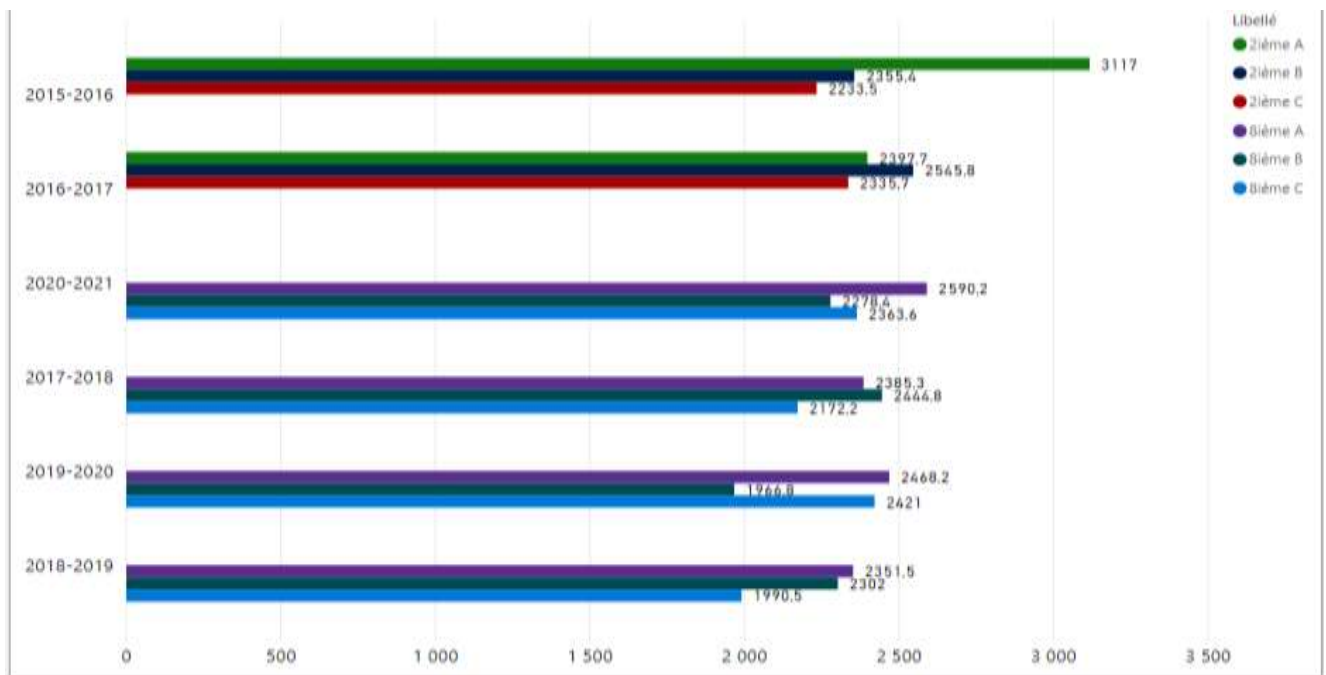
7.2. Details on performances achieved by class

Figure 4: performance achieved by class

This chart 4 below contains results for each year during the period under review and also by class:

Depending on the year, 2018-2019, the 109 eighth-grade students obtain 6644 overall, i.e. an average of 60.91%, followed by the year 2016-2017, where the 122 enrolled obtain 7279., i.e. 59, 66%, 2019-2020 where the 116 students total 59.1%, the year 2015-2016, the 134 registered total 7705.9, an average of 57.5%; comes the year 2017-2018 where the 123 students total 7002.3 or 56.1%. Finally, the year 2020-2021 with 131 registered for a total of 7232.2 or an average of 55.2% .This ranking is amazing, 2018-2019, the year of the outbreak of covid 19, at the top of the ranking. Fewer school days, frustrated students, not many subjects to assess, and teachers respecting society's motto of "save the year". From our point of view, despite the teaching by situation, this year was not well evaluated.

2019-2020 comes in second position, it receives all the achievements of 2018-2019 and also free education, a slight decrease is recorded. In the same way, for 2020-2021 which holds the tail, with a dizzying drop. The awareness of teachers is gradually being reborn. It must be said here that teaching by situation is not yet anchored in the eighth class of the Lycée de Kimwenza According to class:

- 2nd A class which enrolled 44 students to obtain 3117, an average of 70.84% performance for the 2015-2016 School Year; 2nd B, 39 students obtain
- 2nd B class with its 44 students achieves the score of 2545.8 or 34.9% performance
- The 2017-2018 School Year, with its 44 participants, the 8th B , achieves a score equal to 2444.3 or 34.9% performance
- 8th grade class achieved a score of 2351.5, i.e. 35.3% more performance than the others.
- The 2019-2020 school year, the 8th A class with the score 2468.2 or 36% performance.
- finally the 2020-2021 school year, the 8th A class with the mark 2590.20 or 35.8% performance.

In view of the above, it should be said that class performance varies from class to class and from year to year. This can be justified by the selection, the families of the learners, and especially by the organization of the class as a whole.

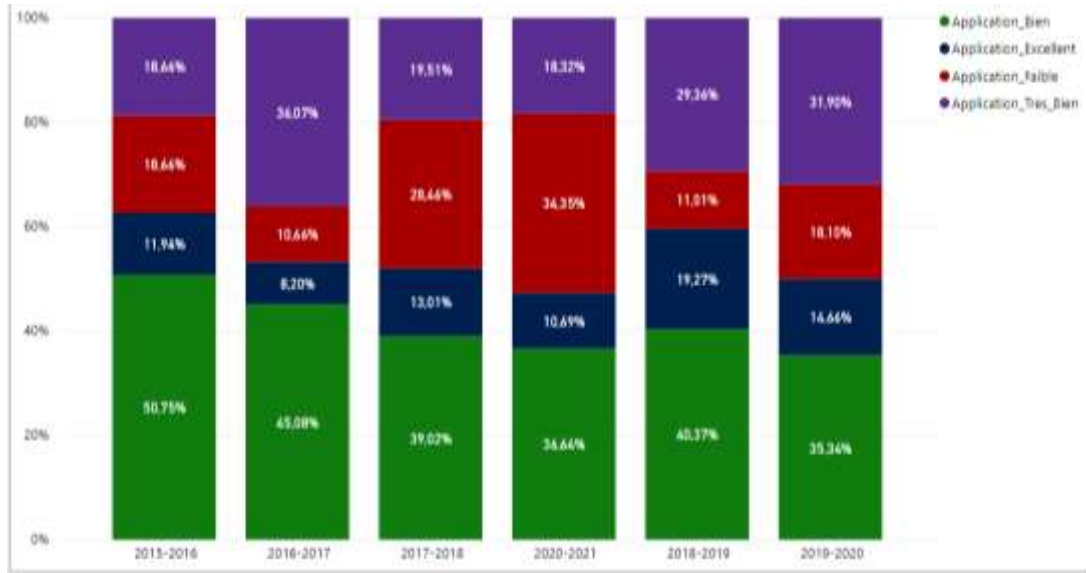## 7.3. Detail of the Performances achieved by the application

Figure 5: Achieved Performance vs Application

The graph above represents the results of the " application " variable. For the year 2015-2016: 18.66% are low; 11.96 are excellent; 18.66 have very good application and 50.75 have good application. By carefully observing this graph, the excellent mention represents for all learners 11.94% in 2015-2016; 8.20% in 2016-2017; 13.0% in 2017-2018; 19.2% in 2018-2019; 14.6% in 2019-2020 and 10.6% in 2020-2021. We see that it is bearish before Covid-19; goes up in 2018-2019 and starts to fall again after this year. This drop can be justified by the fact that under covid 19, the slogan is to save the year. Learners are not objectively assessed.

The results obtained from 2018-2019 and 2019-2020 are overwhelming and astonishing, eighth graders work well during times of distress or it is simply the slogan mentioned above to save the school year. The method of teaching by situation has not yet shown its effects.
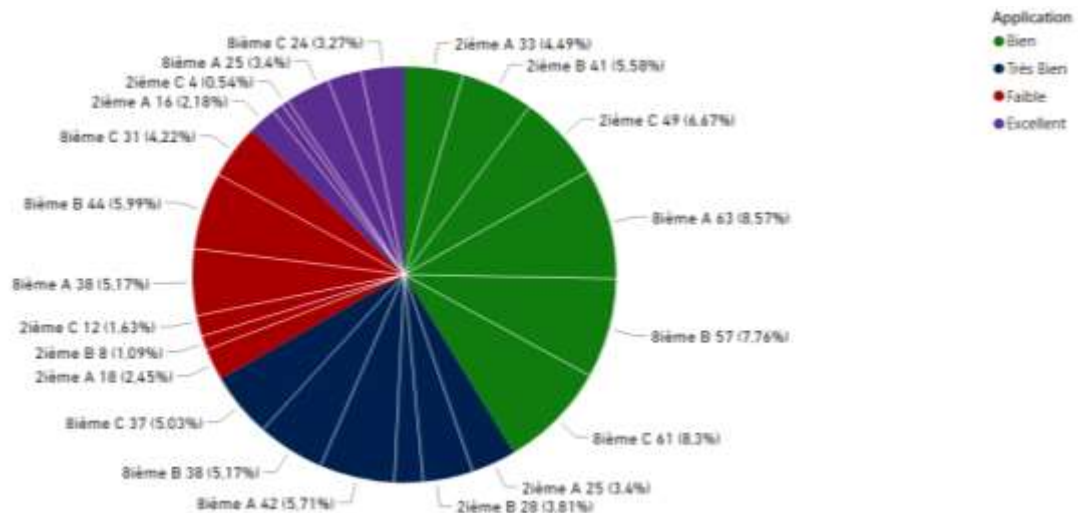

Figure 6: Overview of application performance by school years

7.4. Performance classification of the application variable by the decision tree with the ID3 algorithm
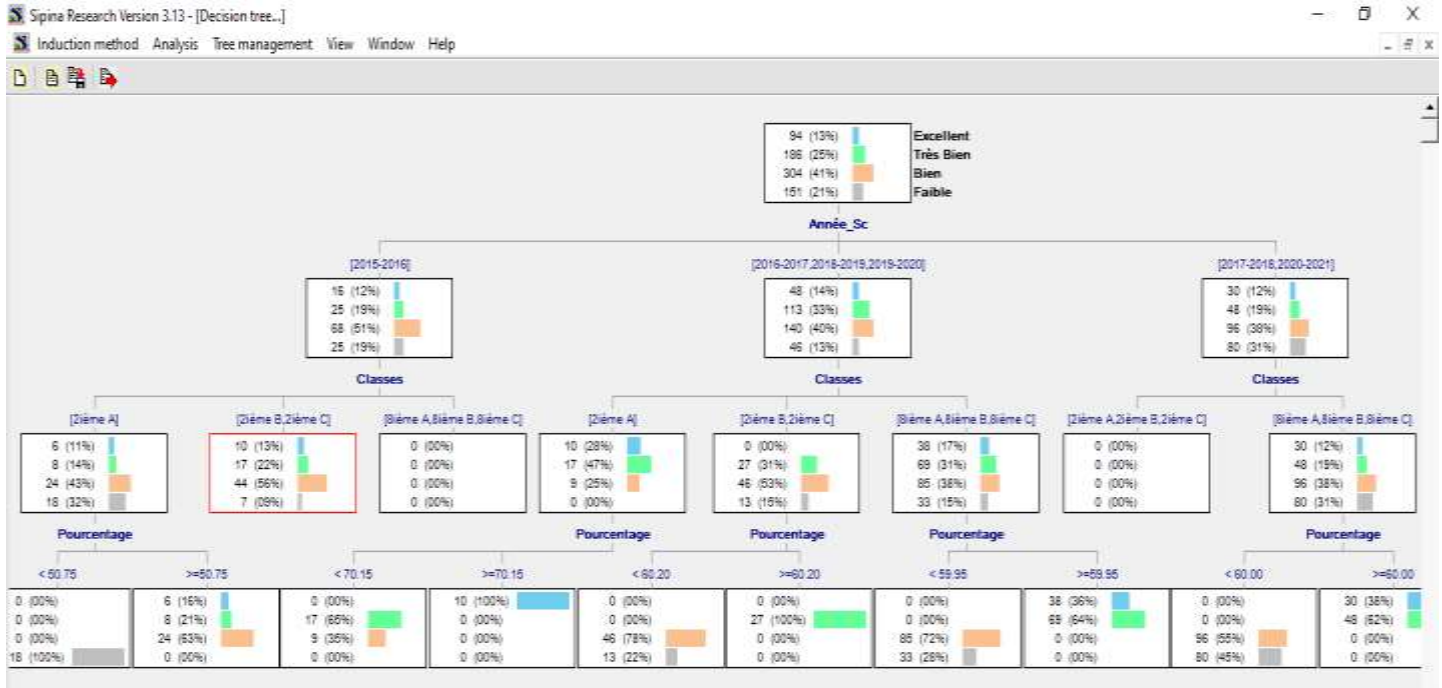

Figure 7: Classification of the performance of the "application" variable by the decision tree with the ID3 algorithm

The decision tree summarizes the main performance information: During the entire period under review; 94 (13%) of students are excellent, 186 (25%) very good, 304 (45%) good and 181 (25%) are weak **.**This shows that a quarter of eighth graders are weak. And most good. Most students are good. The excellent ones in last position.

8.1. Prediction of performance for the future
8.1.1. Prediction decision tree
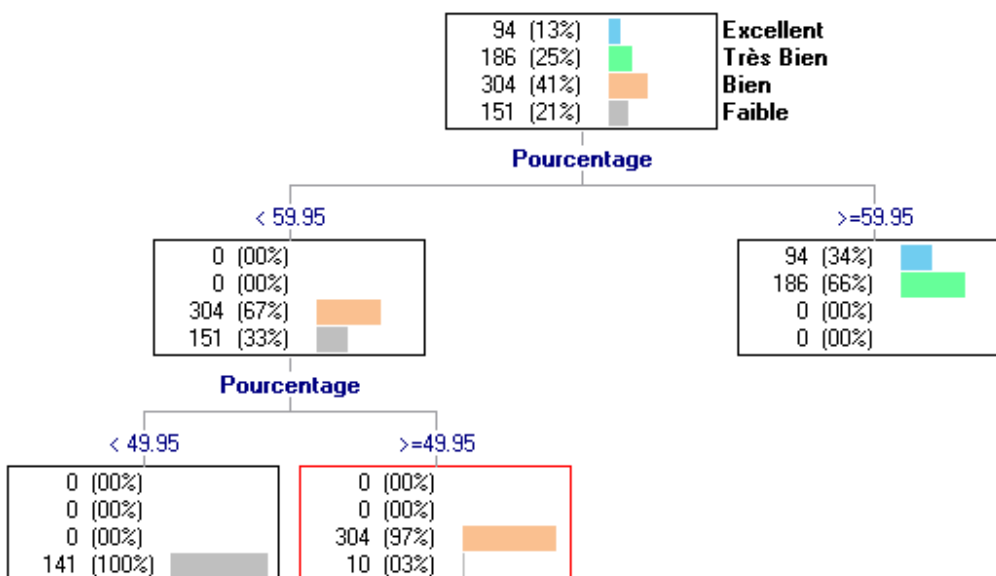
Figure 8: Prediction decision tree

The prediction decision tree indicates that in six years, the excellent and very good students will represent a proportion higher than 59.95% while the weak, a proportion lower than 59.95.

8.1.2. Presentation of performance measures

a) Confusion matrix

supervised learning terminology , is a tool used to measure the quality of a classification system. Each column of the matrix represents the number of occurrences of an estimated class, while each row represents the number of occurrences of an actual (or reference) class. [5]

Finally, the confusion matrix below represents the occurrence of the global way i.e. we have presented a matrix with the Test data set.

Table 2: Presentation of Confusion Matrix

Number of Applications	Column labels		
	Yes	No	Grand total
Alright	186		186
Weak		151	151
Excellent	94		94
GOOD		304	304
Grand total	**280**	**455**	**735**

b)Indicators

Table 3: Overview of Performance Indicators

Error rate	33.33%
Reminder	100.00%
Accuracy	66.43%

The table of indicators above shows that the prediction **error rate is 33.33%;** the **sensitivity** measures the ability of a test to produce a positive or negative result and in our table the sensitivity is 100%, that is to say that the test ability of our prediction is normal; the **accuracy** of our prediction is 66.43%.

c) Confusion Matrix (With 2020-2021 School Year Test data)

In this confusion matrix, we have predicted the application performance that will be achieved in the 2021-2022 school year and the details are presented in the indicator table below.

Table 4: Confusion Matrix (With 2020-2021 School Year Test data)

Number of Applications	Column labels		
Labels lines	Yes	No	Grand total
Alright	24		24
Weak		45	45
Excellent	14		14
GOOD		48	48
Grand total	**38**	**93**	**131**

d) Indicators

Table 5: Indicators

Error rate	45.0%
Sensitivity	100.0%
Accuracy	63.2%

The table of indicators above represents the prediction error rate is 45%; the sensitivity is 100%; the accuracy of our prediction is 63.2%, i.e. the 2021-2022 school year will be a year during which students will achieve an increasing application performance compared to the 2020-2021 year.

Conclusion and Perspectives

The work presented in this article consists of the analysis of pupil's application performance from a data warehouse based on datamining. The multidimensional tools allowed us to analyze the performance of the "application" variable from the 2015-2016 school year to the 2020-2021 school year. We used Power BI for data analysis and SIPINA which is a learning tool for application performance prediction. This very important work can allow the decision-makers of this school and the authorities to make decisions on the quality and performance of education in our country, particularly in the city of Kinshasa. The results obtained at the Lycée de Kimwenza can also be obtained in other eighth grade classes in the DRC.

As a perspective, this work opens the door to the world of research regarding the analysis of teaching performance in the DRCongo. For future research, multidimensional tools and the technique of datamining (decision tree) for data analysis will be used.

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