

Students' Academic Performance Dataset

By
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INTRODUCTION WITH DATASETS INFORMATION:

This is an educational data set which is collected from learning management system (LMS) called Kalboard 360. Kalboard 360 is a multi-agent LMS, which has been designed to facilitate learning through the use of leading-edge technology. Such system provides users with a synchronous access to educational resources from any device with Internet connection.

The data is collected using a learner activity tracker tool, which called experience API (xAPI). The xAPI is a component of the training and learning architecture (TLA) that enables to monitor learning progress and learner's actions like reading an article or watching a training video. The experience API helps the learning activity providers to determine the learner, activity and objects that describe a learning experience.

The dataset consists of 480 student records and 16 features. The features are classified into three major categories: (1) Demographic features such as gender and nationality. (2) Academic background features such as educational stage, grade Level and section. (3) Behavioral features such as raised hand on class, opening resources, answering survey by parents, and school satisfaction.

The dataset consists of 305 males and 175 females. The students come from different origins such as 179 students are from Kuwait, 172 students are from Jordan, 28 students from Palestine, 22 students are from Iraq, 17 students from Lebanon, 12 students from Tunis, 11 students from Saudi Arabia, 9 students from Egypt, 7 students from Syria, 6 students from USA, Iran and Libya, 4 students from Morocco and one student from Venezuela.

The dataset is collected through two educational semesters: 245 student records are collected during the first semester and 235 student records are collected during the second semester.

The data set includes also the school attendance feature such as the students are classified into two categories based on their absence days: 191 students exceed 7 absence days and 289 students their absence days under 7.

This dataset includes also a new category of features; this feature is parent participation in the educational process. Parent participation feature have two sub features: Parent Answering Survey and Parent School Satisfaction. There are 270 of the parents answered survey and 210 are not, 292 of the parents are satisfied from the school and 188 are not.

The students are classified into three numerical intervals based on their total grade/mark:

Low-Level: interval includes values from 0 to 69 Which is C.

Middle-Level: interval includes values from 70 to 89 which is B.

High-Level: interval includes values from 90-100 which is A.

ASK:

The **business task** is to analyze the performance of students then give advise on how the students will improve in their studies.

PREPARE:

The dataset consists of 480 student records and 16 features. The features are classified into three major categories: (1) Demographic features such as gender and nationality. (2) Academic background features such as educational stage, grade Level and section. (3) Behavioral features such as raised hand on class, opening resources, answering survey by parents, and school satisfaction.

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PROCESS:

Loading packages in Googlesheets and cleaning data.

Student performance xAPI-Edu-Data Working offline

File Edit View Insert Format Data Tools Extensions Help

100% 123 Default... 10 B I A

A1 gender

	A	B	C	D	E	F	G	H	I	J	V
1	gender	NationalTy	PlaceofBirth	StagelD	GradelD	SectionID	Topic	Semester	Relation	raisedhands	
2	M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father	15	
3	M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father	20	
4	M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father	10	
5	M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father	30	
6	M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father	40	
7	F	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father	42	
8	M	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father	35	
9	M	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father	50	
10	F	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father	12	
11	F	KW	KuwalT	MiddleSchool	G-07	B	IT	F	Father	70	
12	M	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father	50	
13	M	KW	KuwalT	MiddleSchool	G-07	B	Math	F	Father	19	

The COUNTA function was used to determine the total number of students in the datasets.
 $\text{=COUNTA}(B2:B1000) = 480$ students

Student performance xAPI-Edu-Data

File Edit View Insert Format Data Tools Extensions Help

100% 123 Default... 10 B I A

A2 $\text{=COUNTA}(B2:B1000)$

	A	B	C	D	E	F	G	H	I	J
1		gender	NationalTy	PlaceofBirth	StagelD	GradelD	SectionID	Topic	Semester	Relation
2	480	M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father
3		M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father
4		M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father
5		M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father
6		M	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father
7		F	KW	KuwalT	lowerlevel	G-04	A	IT	F	Father
8		M	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father
9		M	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father
10		F	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father
11		F	KW	KuwalT	MiddleSchool	G-07	B	IT	F	Father
12		M	KW	KuwalT	MiddleSchool	G-07	A	Math	F	Father
13		M	KW	KuwalT	MiddleSchool	G-07	B	Math	F	Father

The COUNTUNIQUE function was used to determine the number of unique gender in the datasets. $\text{=COUNTUNIQUE}(B2:B1000)$ in (gender) = 2, which is male and female.

Student performance xAPI-Edu-Data

	A	B	C	D	E	F	G	H	I	J
1		gender	Nationality	PlaceofBirth	StageID	GradeID	SectionID	Topic	Semester	Relation
2		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
3		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
4		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
5		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
6		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
7		F	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
8		M	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
9		M	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
10		F	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
11		F	KW	Kuwait	MiddleSchool	G-07	B	IT	F	Father
12		M	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
13		M	KW	Kuwait	MiddleSchool	G-07	B	Math	F	Father

The COUNTBLANK function was used to determine if there are blank spaces in the datasets.
 $\text{=COUNTUNBLANK (B2:R480) = 0}$

docs.google.com/spreadsheets/d/1SUUnHkwHem0o0C0MfcWnQjacVUC64g2xQtyIFsDkl0E/edit#gid=714806521

Student performance xAPI-Edu-Data

	A	B	C	D	E	F	G	H	I	J
1		gender	Nationality	PlaceofBirth	StageID	GradeID	SectionID	Topic	Semester	Relation
2		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
3		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
4		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
5		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
6		M	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
7		F	KW	Kuwait	lowerlevel	G-04	A	IT	F	Father
8		M	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
9		M	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
10		F	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
11		F	KW	Kuwait	MiddleSchool	G-07	B	IT	F	Father
12		M	KW	Kuwait	MiddleSchool	G-07	A	Math	F	Father
13		M	KW	Kuwait	MiddleSchool	G-07	B	Math	F	Father

PROCESS WITH POWERBI:

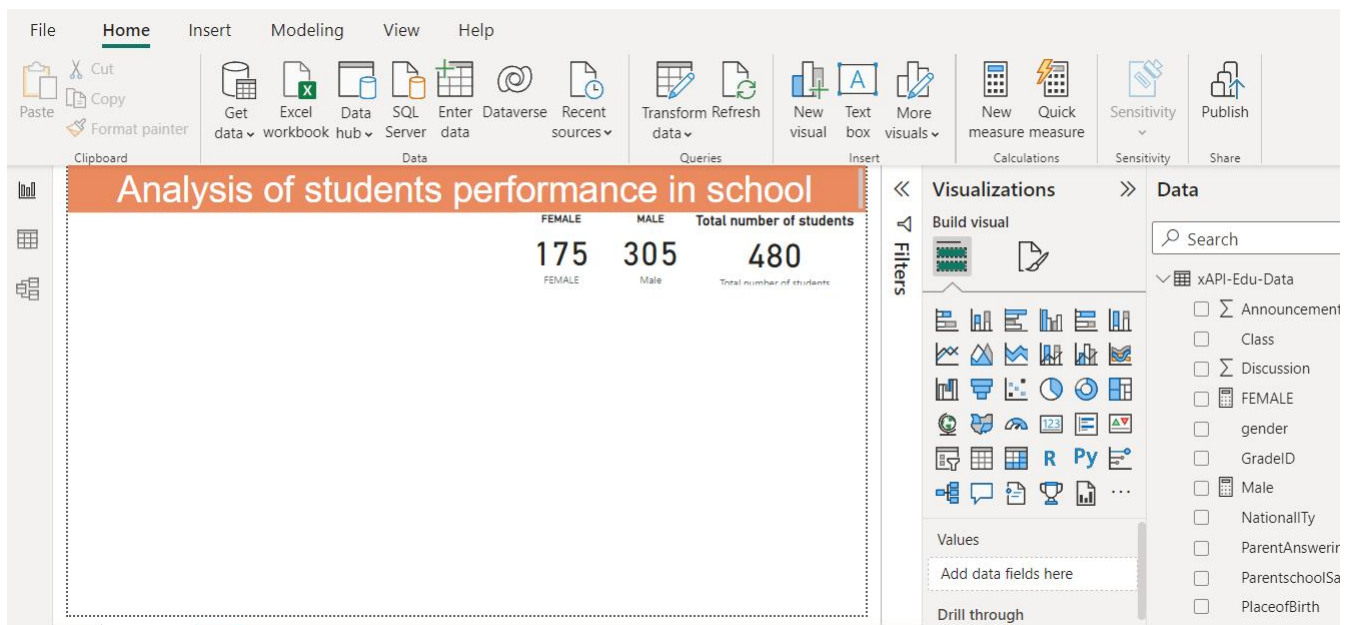
Loading data packages into PowerBi and Analysing .

File Origin: 1252: Western European (Windows) | Delimiter: Comma | Data Type Detection: Based on first 200 rows

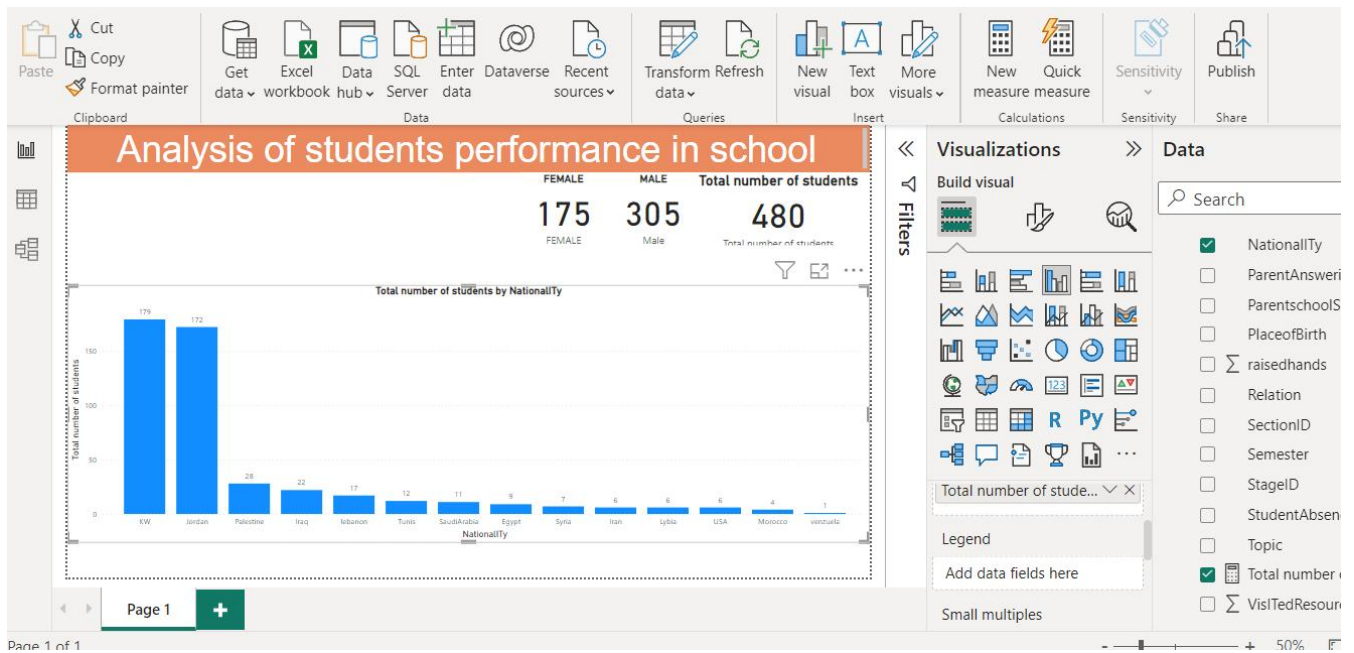
gender	Nationality	PlaceofBirth	StageID	GradeID	SectionID	Topic	Semester	Relation	raisedhands	VisitResource
M	KW	KuwaIT	lowerlevel	G-04	A	IT	F	Father	15	
M	KW	KuwaIT	lowerlevel	G-04	A	IT	F	Father	20	
M	KW	KuwaIT	lowerlevel	G-04	A	IT	F	Father	10	
M	KW	KuwaIT	lowerlevel	G-04	A	IT	F	Father	30	
M	KW	KuwaIT	lowerlevel	G-04	A	IT	F	Father	40	
F	KW	KuwaIT	lowerlevel	G-04	A	IT	F	Father	42	
M	KW	KuwaIT	MiddleSchool	G-07	A	Math	F	Father	35	
M	KW	KuwaIT	MiddleSchool	G-07	A	Math	F	Father	50	
F	KW	KuwaIT	MiddleSchool	G-07	A	Math	F	Father	12	
F	KW	KuwaIT	MiddleSchool	G-07	B	IT	F	Father	70	
M	KW	KuwaIT	MiddleSchool	G-07	A	Math	F	Father	50	
M	KW	KuwaIT	MiddleSchool	G-07	B	Math	F	Father	19	
M	KW	KuwaIT	lowerlevel	G-04	A	IT	F	Father	5	
M	lebanon	lebanon	MiddleSchool	G-08	A	Math	F	Father	20	
F	KW	KuwaIT	MiddleSchool	G-08	A	Math	F	Mum	62	
F	KW	KuwaIT	MiddleSchool	G-06	A	IT	F	Father	30	
M	KW	KuwaIT	MiddleSchool	G-07	B	IT	F	Father	36	
M	KW	KuwaIT	MiddleSchool	G-07	A	Math	F	Father	55	
F	KW	KuwaIT	MiddleSchool	G-07	A	IT	F	Mum	69	
M	KW	KuwaIT	MiddleSchool	G-07	B	IT	F	Mum	70	

Extract Table Using Examples | Load | Transform Data | Cancel

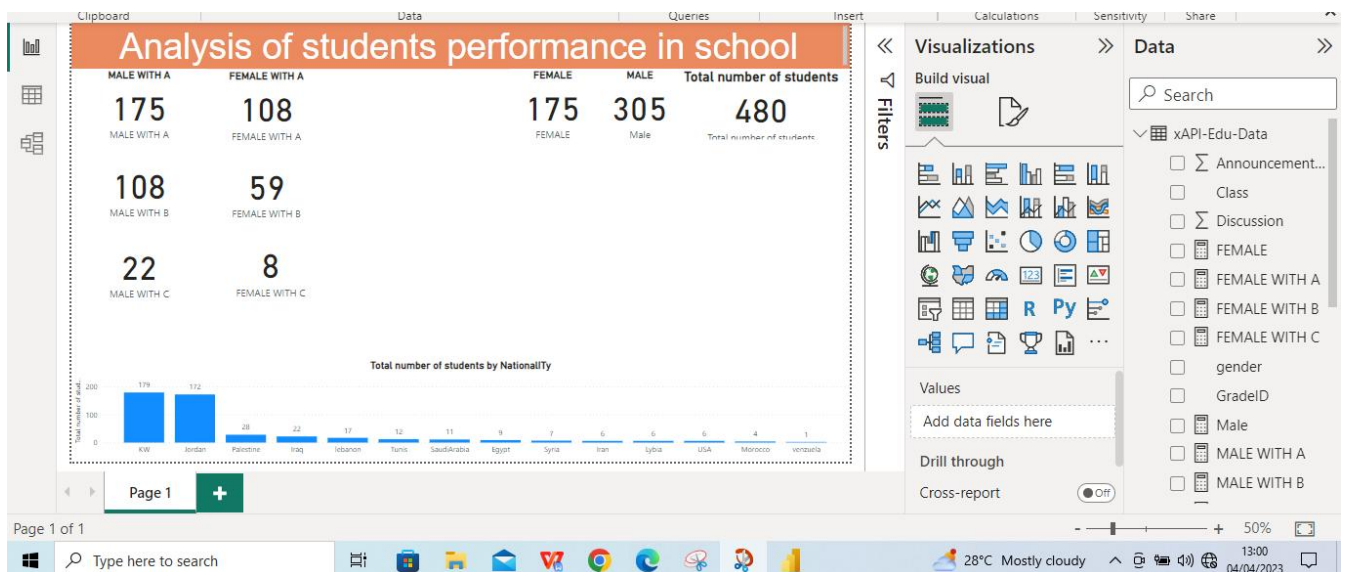
Showing the total number of students, the total number of Male students and Female students



Showing the total number of students by Nationality and here we can see that KW which is Kuwait has the highest number of students, followed by Jordan.

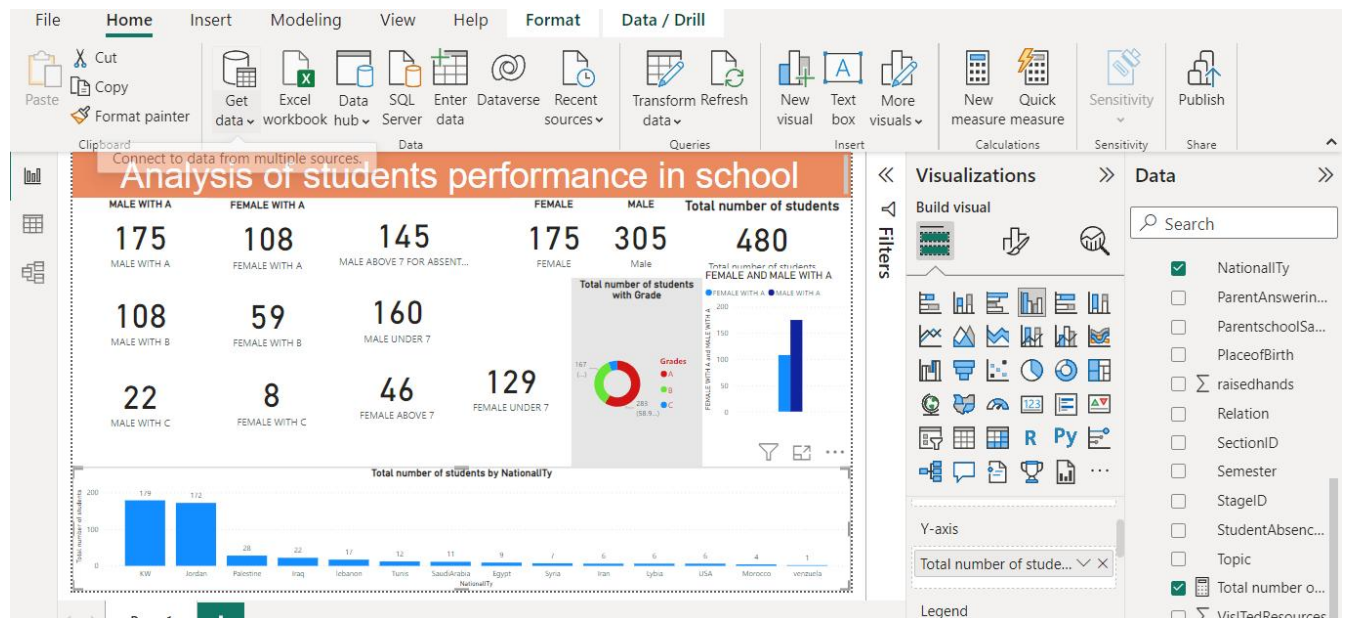


Showing the total number of Male with A, B, C grades and the total number of FEMALE with A,B,C grades as well.

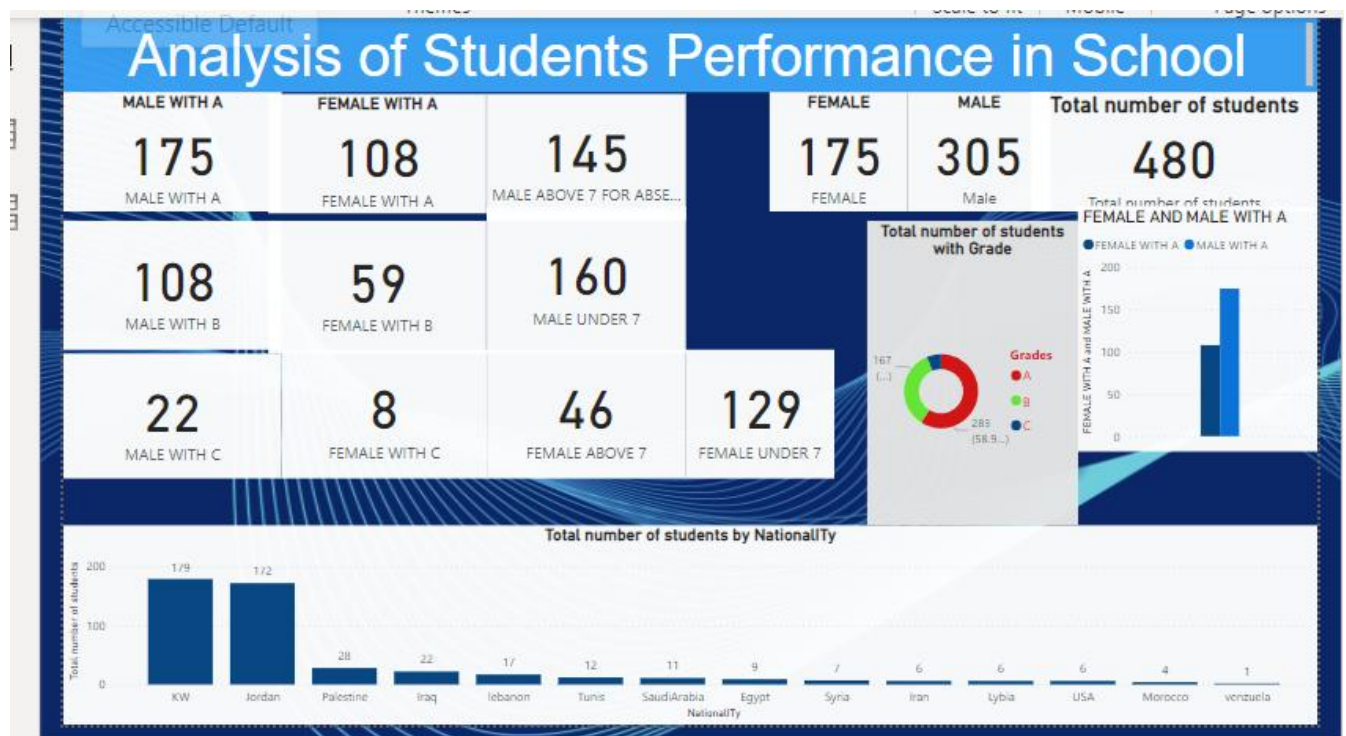


Showing the total number of Male student absence days Above 7 and Under 7, Also showing Female student absence days Above 7 and under 7.

Also showing the total number of students with grades where A have the largest students.



The Final Visualization with PowerBI:



ACT

Summary of key findings and recommendations

- (1) Parents should be advise to allow their children to attend school regularly for them to perform well in their academics.
- (2) Parents should be told to also assist their children with there home works when they get home.
- (3) Parents should have a good conversation with their children to know how they are performing in school.
- (4) Parent should always ask their children class teach on how their kids are performing in school to know where to help .
- (5) Teachers should always give a feedback to parents on their children performance in school.
- (6) Teachers should always watch over their pupils to know there strength and weakness and help them out on there weakness to bring out the best in them.

REFERENCES

- (1) Data Source : Elaf Abu Amrieh, Thair Hamtini, and Ibrahim Aljarah, The University of Jordan,
- (2) Amman, Jordan, <http://www.Ibrahimaljarah.com>
- (3) www.ju.edu.jo