

KPU Assignment

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Problem Statement:

To create an interactive dashboard from a given data source with various graphs to represent the following:

- Number of credits
- Unique count of students
- Count of CRNs

Additionally, I have included two more graphs to highlight the more detailed aspect of the data as follow:

- Number of courses by gender
- Number of courses by student time status

These graphs should respond to the following slicers:

- International or Domestic
- Student Level
- Credential Types
- Age group
- Course Faculty
- Program Faculty

Considered approach for this problem:

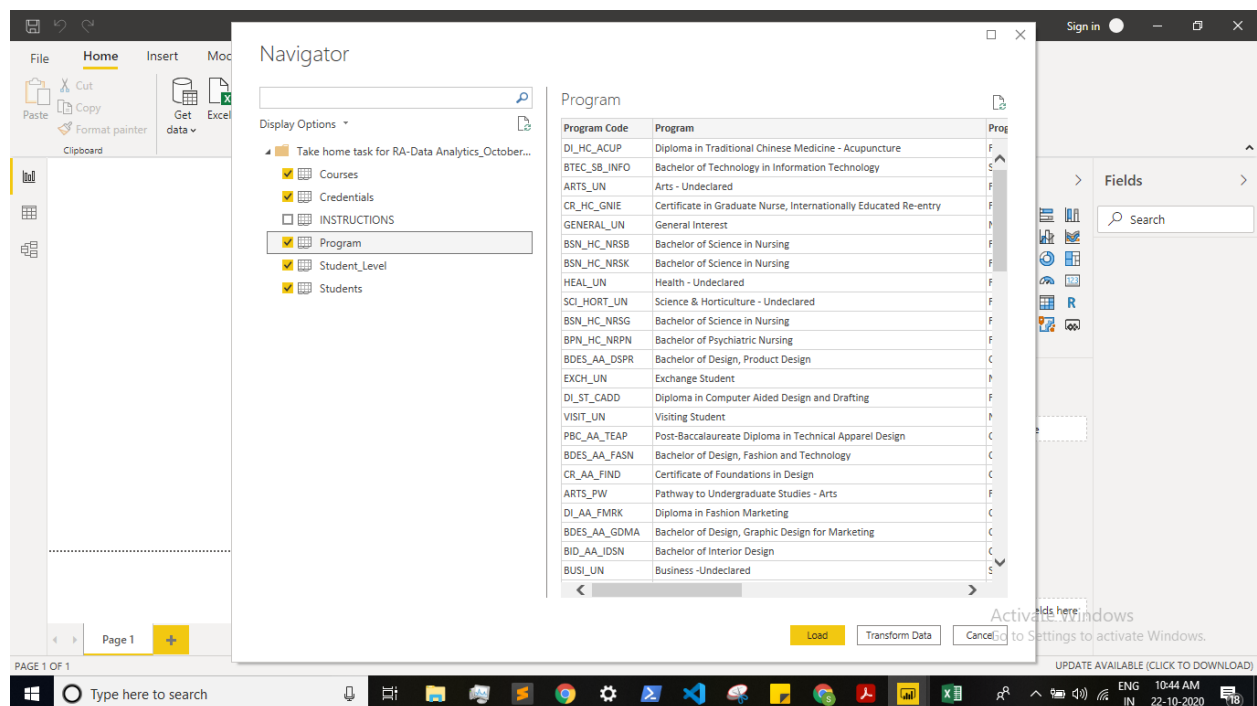
We can use various visualization tools like Excel, Power BI, Tableau for preparing this report.

For this workbook, I have used Power BI. I prefer Power BI because we can pre-process and manipulate data more conveniently.

Following are the steps followed while preparing this report:

Step 1: Get Data

Select the appropriate data sources. Here, it was excel so I selected an Excel file from the local PC and select the required sheets.



Step 2: Transform Data

Make the required changes in the datatypes and remove null values. If we want to create any additional data model, then we can do it here.

Check the validity of the data.

In this case, I have changed the data type of field Course Number from Decimal number to Text (as it was contained few non-numeric values as well).

Then click 'Close & Apply'

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Sort Split Column Group By Data Type: Text Use First Row as Headers Replace Values Merge Queries Append Queries Combine Files Text Analytics Vision Azure Machine Learning AI Insights

Queries [5] Courses Credentials Student_Level Students Program

Table.TransformColumnTypes(*Promoted Headers*,{{{"Term Code", Int64.Type}, {"Subject", type text}, {"Course

	Term Code	Subject	Course Number	Section Number	Course Level	CRN
1	202011	ACUP	1100	R10	UG	
2	202011	ACUP	1100	R10	UG	
3	202011	ACUP	1100	R10	UG	
4	202011	ACUP	1100	R10	UG	
5	202011	ACUP	1100	R10	UG	
6	202011	ACUP	1100	R10	UG	
7	202011	ACUP	1100	R10	UG	
8	202011	ACUP	1100	R10	UG	
9	202011	ACUP	1100	R10	UG	
10	202011	ACUP	1100	R10	UG	
11	202011	ACUP	1100	R10	UG	
12	202011	ACUP	1100	R10	UG	
13	202011	ACUP	1100	R10	UG	
14	202011	ACUP	1100	R10	UG	
15	202011	ACUP	1100	R10	UG	
16	202011	ACUP	1100	R10	UG	
17	202011	ACUP	1100	R10	UG	
18	202011	ACUP	1100	R10	UG	
19	202011	ACUP	1160	R10	UG	
20	202011	ACUP	1160	R10	UG	
21						

Query Settings

PROPERTIES
Name: Students
All Properties

APPLIED STEPS
Source
Navigation
Promoted Headers
Changed Type

18 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED ON WEDNESDAY

Activate Windows
Go to Settings to activate Windows.

Step 3: Data Modelling

Establish relationships between various data models.

KPU - Power BI Desktop

File Home Help

Clipboard Data Queries Relationships Security Q&A Language Linguistic schema Share

Get data Excel Power BI SQL Server Enter data Recent sources Transform Refresh Manage relationships Manage roles View as Q&A Language Linguistic schema Publish

Credentials
Credential Type
Credential Type Code

Courses
Course Faculty
Course Number
Department
Subject

Program
Credential Type Code
Program
Program CIP code
Program Code
Program Department
Program Faculty

Student_Level
Student Level
Student Level Code

Students
Age (start of term)
Age_Group(Start of Ter...
City
Course Credit Hours
Course Level
Course Number
CRN

Properties
Select one or more model objects to set their properties.

Fields
Search
Courses
Credentials
Program
Student_Level
Students

UPDATE AVAILABLE (CLICK TO DOWNLOAD)

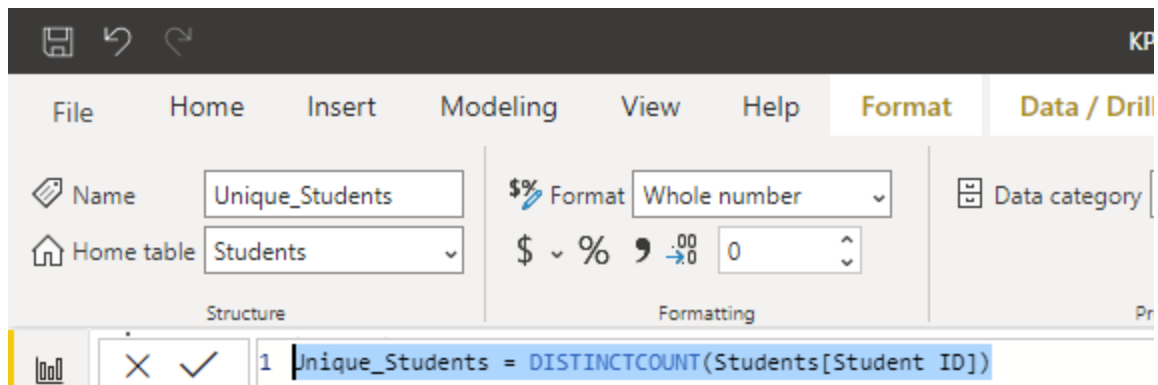
Activate Windows
Go to Settings to activate Windows.

Step 4: Create Measure

As mentioned in the problem statement, we need to design a graph for a unique number of students.

Hence, I introduced a new measure here as follow:

Unique_Students = DISTINCTCOUNT(Students[Student ID])

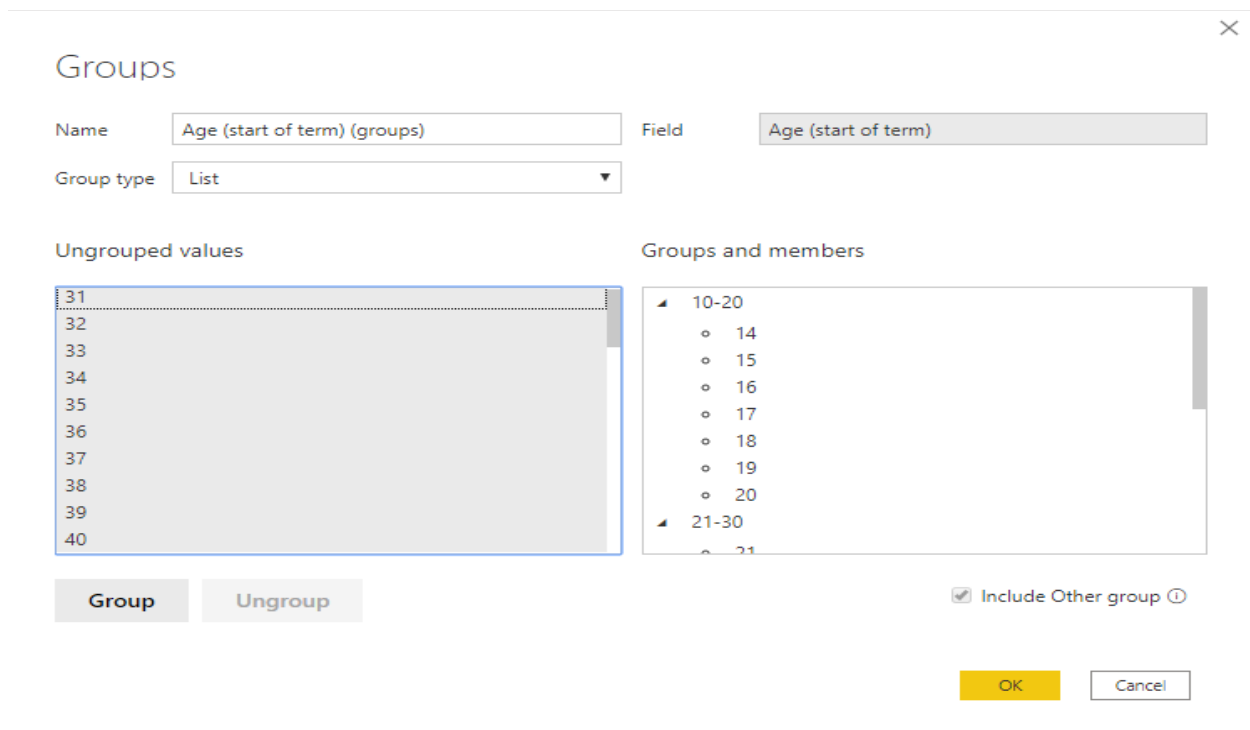


Step 5: Create Group

We need to use slicer for the age group.

Therefore, create new groups on the age column.

Range would be 10-20, 21-30, 31-40, 41-50, 51-60, 61-70 and Above 70.



Step 6: Add Slicers

Use Slicers so that our graphs would respond according to slicers.

Slicer 1: International or Domestic (Residency)

This slicer will slice the entire report on the basis of the student's residential status i.e.Domestic or International.

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Residency

All

☐ Domestic

☐ International

Slicer 2: Student Level

This slicer will slice the report on the basis of student-level code i.e. PW-Pathway, CP-College Prep, UG-Undergraduate

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Student Level Code

All

☐ CP

☐ PW

☐ UG

Slicer 3: Credential types

This slicer will slice the report on the basis of credential type code i.e. DI-Diploma, BC-Baccalaureate, UN-Undeclared, CR-Certificate, etc.

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Credential Type Code

All

☐ AD

☐ BC

☐ CR

☐ CT

☐ DI

☐ PB

☐ UN

Slicer 4: Age Group

This slicer will slice the report on the basis of the student's age group as per the start of term i.e. 11-20, 21-30, 31-40, 41-50, 51-60, 61-70, and Above 70.

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Age_Group(Start of Term)

All

☐ 11-20

☐ 21-30

☐ 31-40

☐ 41-50

☐ 51-60

☐ 61-70

☐ Above 70

Slicer 5: Course Faculty

This slicer will slice the report on the basis of Course Faculty i.e. Faculty of Arts, Faculty of Health, School of Business, etc.

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Course Faculty

All

- ☐ Chip & Shannon Wilson School of Design
- ☐ Faculty of Arts
- ☐ Faculty of Health
- ☐ Faculty of Science and Horticulture
- ☐ Faculty of Trades and Technology
- ☐ Non-Faculty
- ☐ School of Business

Slicer 6: Program Faculty

This slicer will slice the report on the basis of ProgramFaculty i.e. Faculty of Academic & Career Advancement, Faculty of Science & Horticulture, School of Business, etc.

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Program Faculty

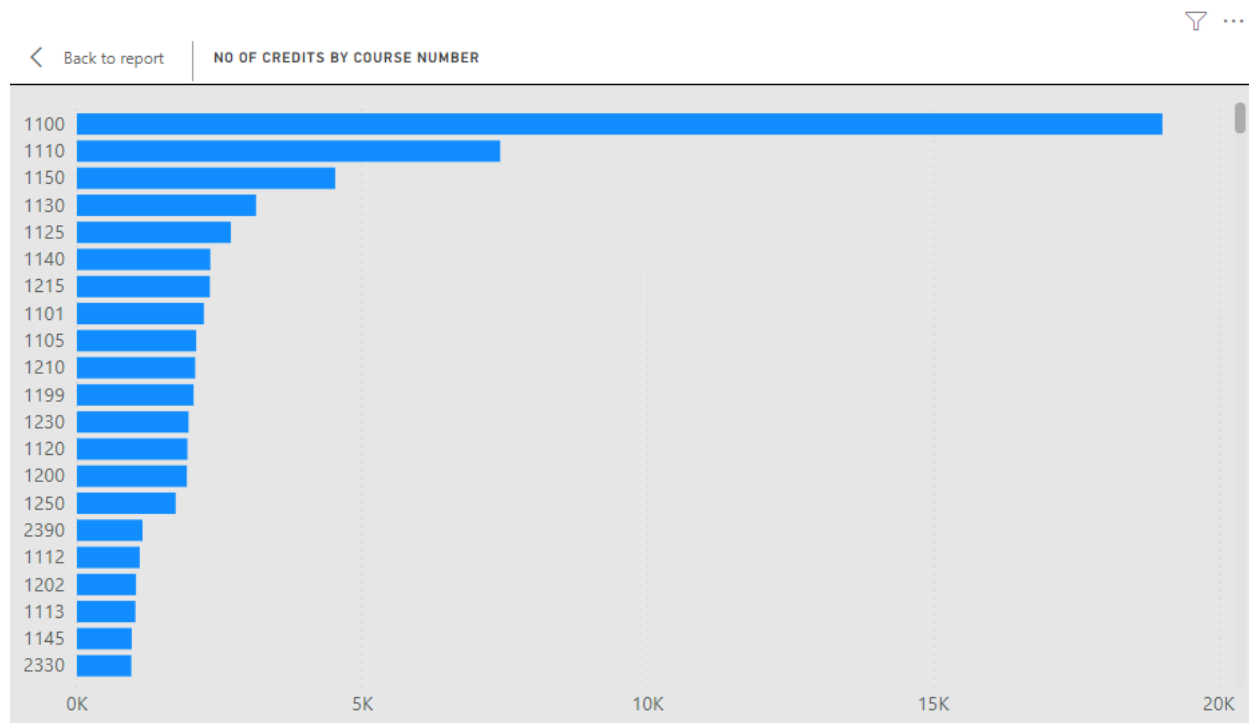
All

- ☐ Chip and Shannon Wilson School of Design
- ☐ Faculty of Academic & Career Advancement
- ☐ Faculty of Arts
- ☐ Faculty of Health
- ☐ Faculty of Science and Horticulture
- ☐ Faculty of Trades and Technology
- ☐ Non-credential students (Academic)
- ☐ School of Business

Step 7: Add Graphs

Graph 1: No. of Credentials by Course Number

For this graph, I have used a visual 'Clustered Bar Chart' so that we can represent the total number of course credit hours students will get per course number.



Graph 2: Count of CRNs

For this graph, I have used a visual 'Matrix' so that we can represent the count of CRNs against each course number.

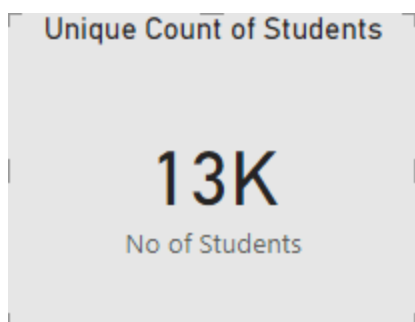
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COUNT OF CRNS

Course Number	CRN
1100	6637
1101	909
1102	193
1103	98
1104	157
1105	774
1106	68
1107	245
1110	2743
1111	232
1112	380
1113	354
1114	64
1115	272
1116	22
1117	85
1118	63
1120	685
Total	42737

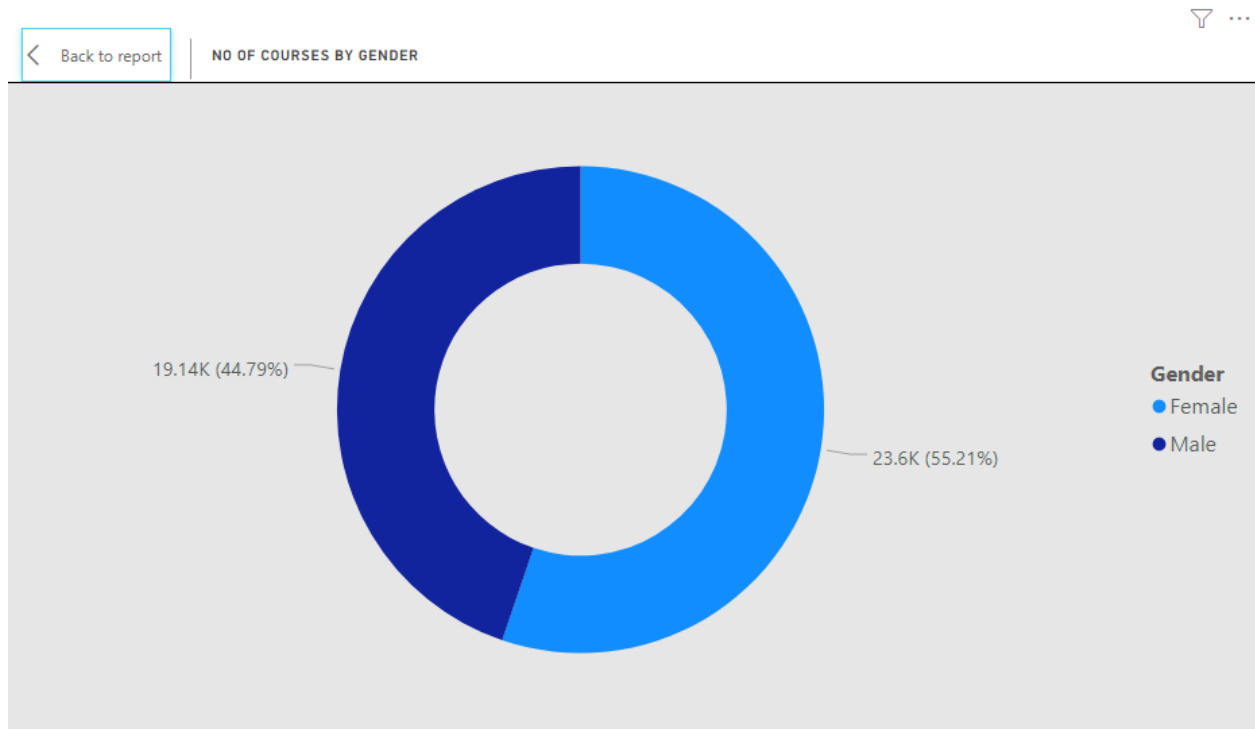
Graph 3: Unique count of students

For this graph, I have used a simple visual called 'Card' so that for every slicer/filter we can appropriately show the unique no of students who falls under that condition.



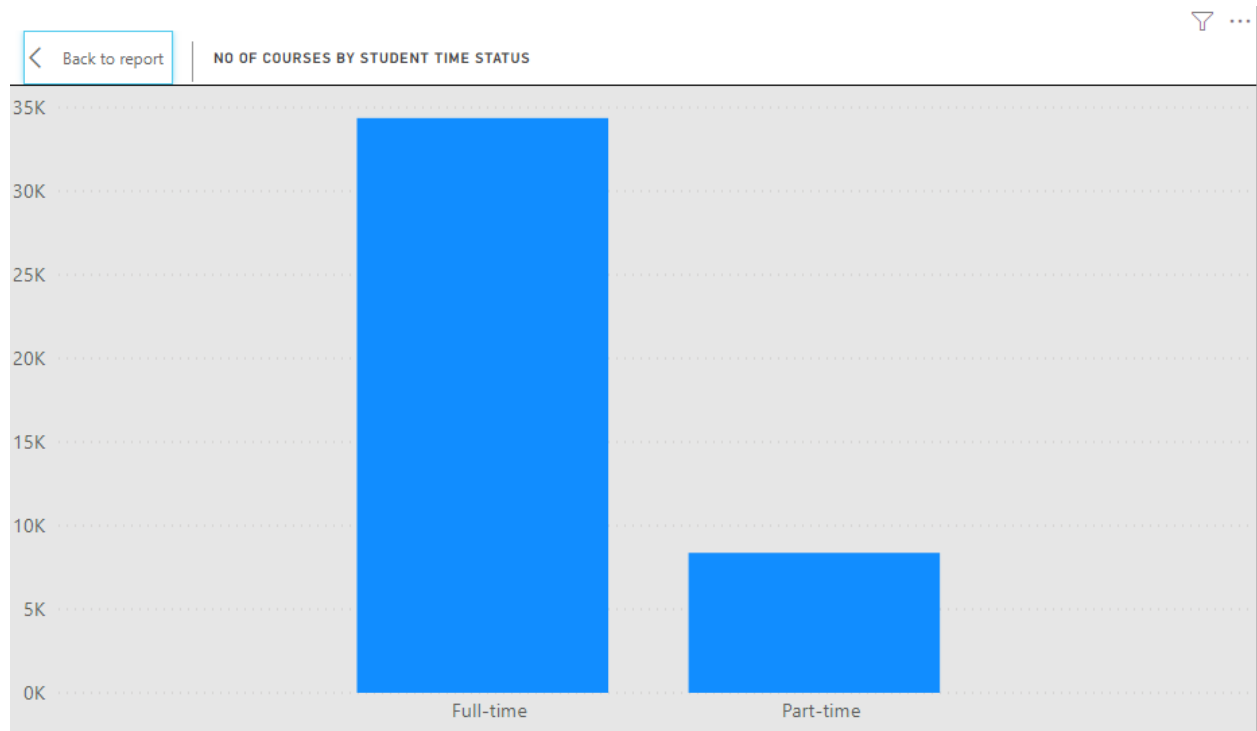
Graph 4: No. of courses by gender

For this graph, I have used a visual 'Donut chart' to represent gender diversity for each course of the university.



Graph 6: No of Courses by student time status

For this graph, I have used a visual called 'Stacked column chart' to represent the student time status ratio for the number of courses. i.e. Full-time or Part-time



Step 8: Dashboard Preparation

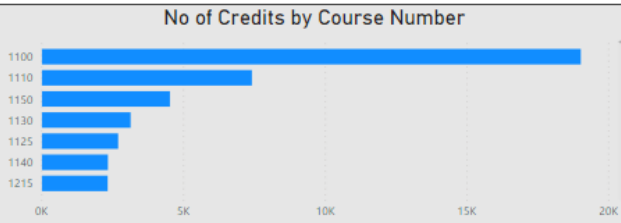
Once all the graphs are ready, we can arrange these visuals on the final dashboard. So the final dashboard will consist of the Report Name, University logo, all slicers, and graphs.

It will be an **interactive dashboard**. A separate report has been attached.



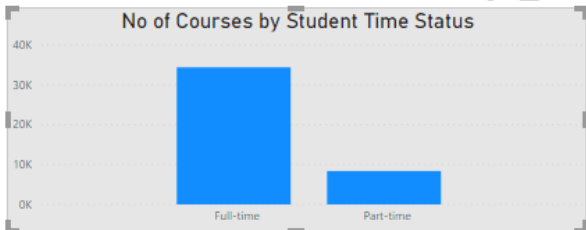
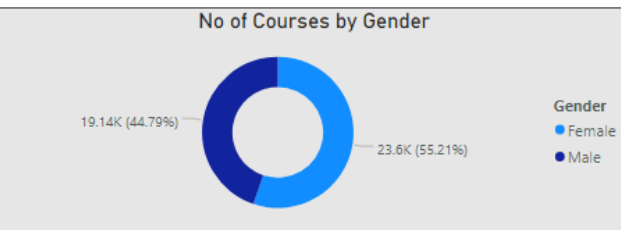
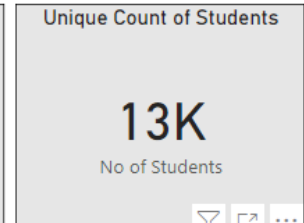
Student's Report

Residency	Student Level ...	Credential Typ...	Age_Group(Start o...	Course Faculty	Program Faculty
All	All	All	All	All	All



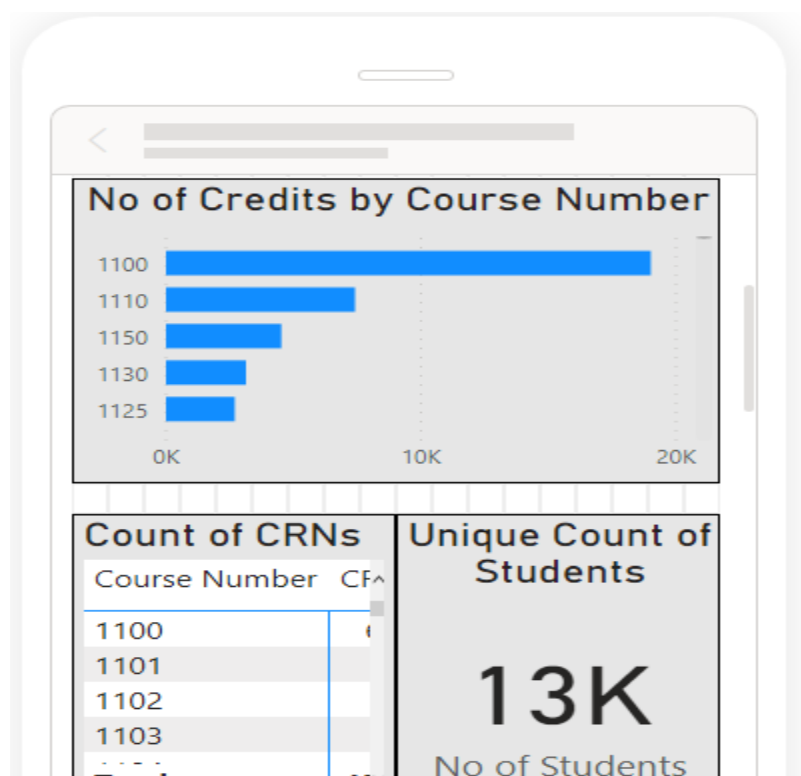
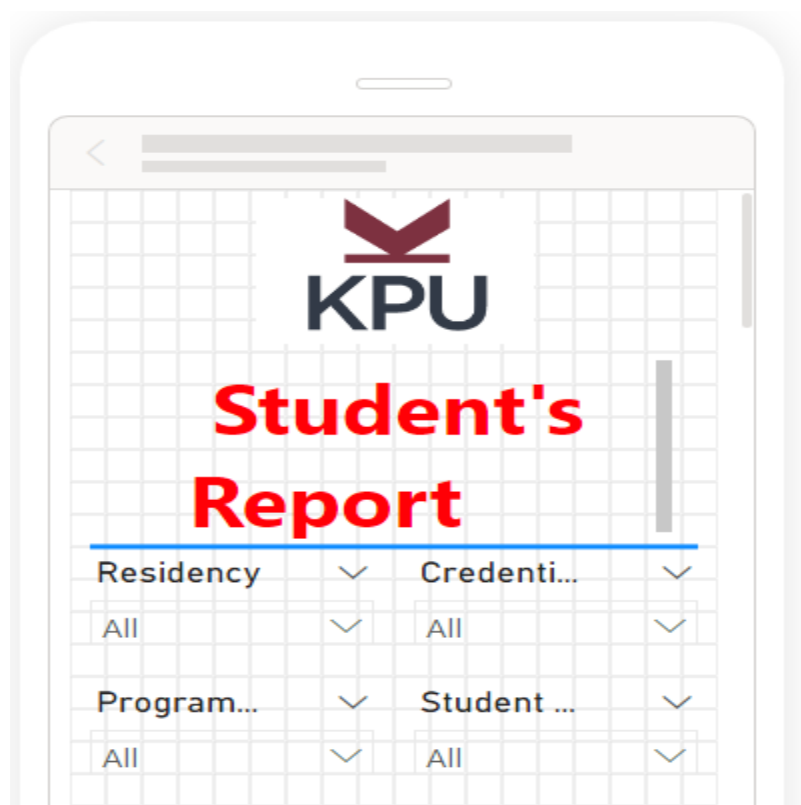
Count of CRNs

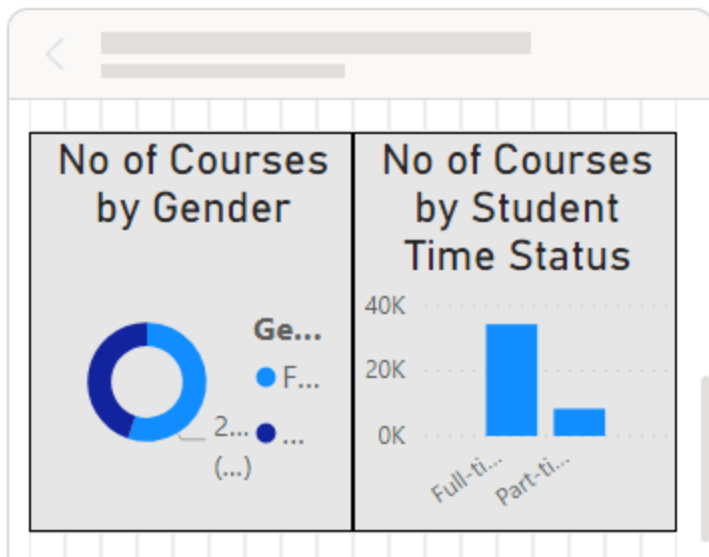
Course Number	CRN
1100	6637
1101	909
1102	193
1103	98
1104	157
1105	774
Total	42737



Step 9: Mobile View

We can represent this same report on the mobile view as well.





Conclusion:

In this case study, we have used various visualization effects supported by Power BI. We can publish this report on both desktops as well as mobile layout using the Power BI account.

Thank you!!!