

Title of my dashboard:

- Zewail City University Administration

All available information that will be provided by your client:

- The dataset includes information about students, such as their
 - 1- ID
 - 2- name
 - 3- phone
 - 4- address
 - 5- birth date
 - 6- gender
 - 7- email
 - 8- major
 - 9- faculty name.

Required questions that your dashboard should answer:

1. How is the student population distributed across different majors?
2. What is the gender distribution among the students?
3. How many students are enrolled in each faculty?
4. What is the overall distribution of students based on their major?

[b] For each chart in the dashboard:

1. Pie Chart for Gender:

- **Chart Type:** Pie Chart
- **Title:** Gender Distribution
 - **Colors:** Two contrasting colors for Male and Female (e.g., light blue for Male, Blue for Female)
 - **Legend:** Displayed to show the mapping of colors to genders
 - **Questions it Answers:**
 - What is the percentage distribution of Male and Female

students?

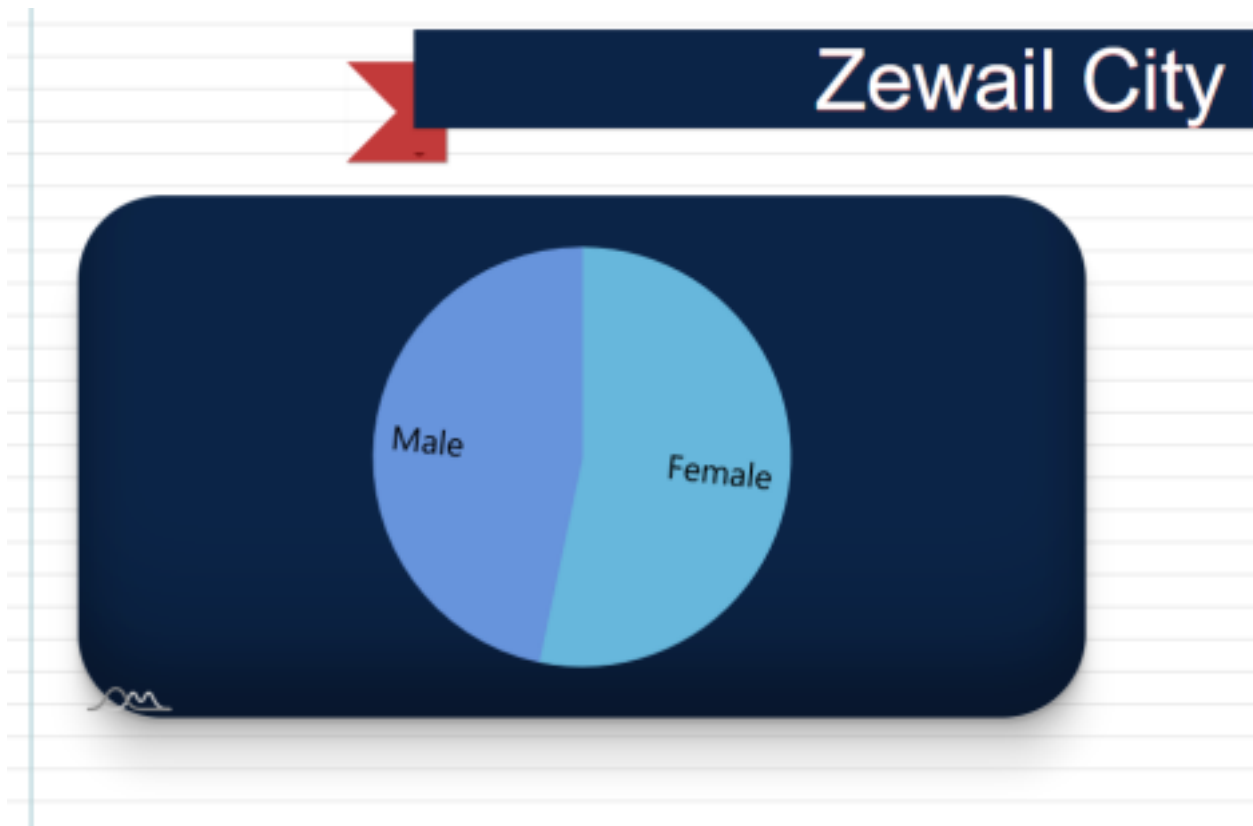
- **How it Shows Up:**

- Always visible on the dashboard.

- **Why this Chart Type:**

- Pie charts are effective for showing the proportional distribution of categories, making it suitable for showcasing the gender distribution.

- **Figure 1:**



2. Funnel Chart for Faculty Name:

- **Chart Type:** Funnel Chart

- **Title:** Student Enrollment by Faculty

- **Colors:** Various colors for each faculty

- **Legend:** Displayed to show the mapping of colors to faculties

- **Questions it Answers:**

- How does the enrollment vary across different faculties?

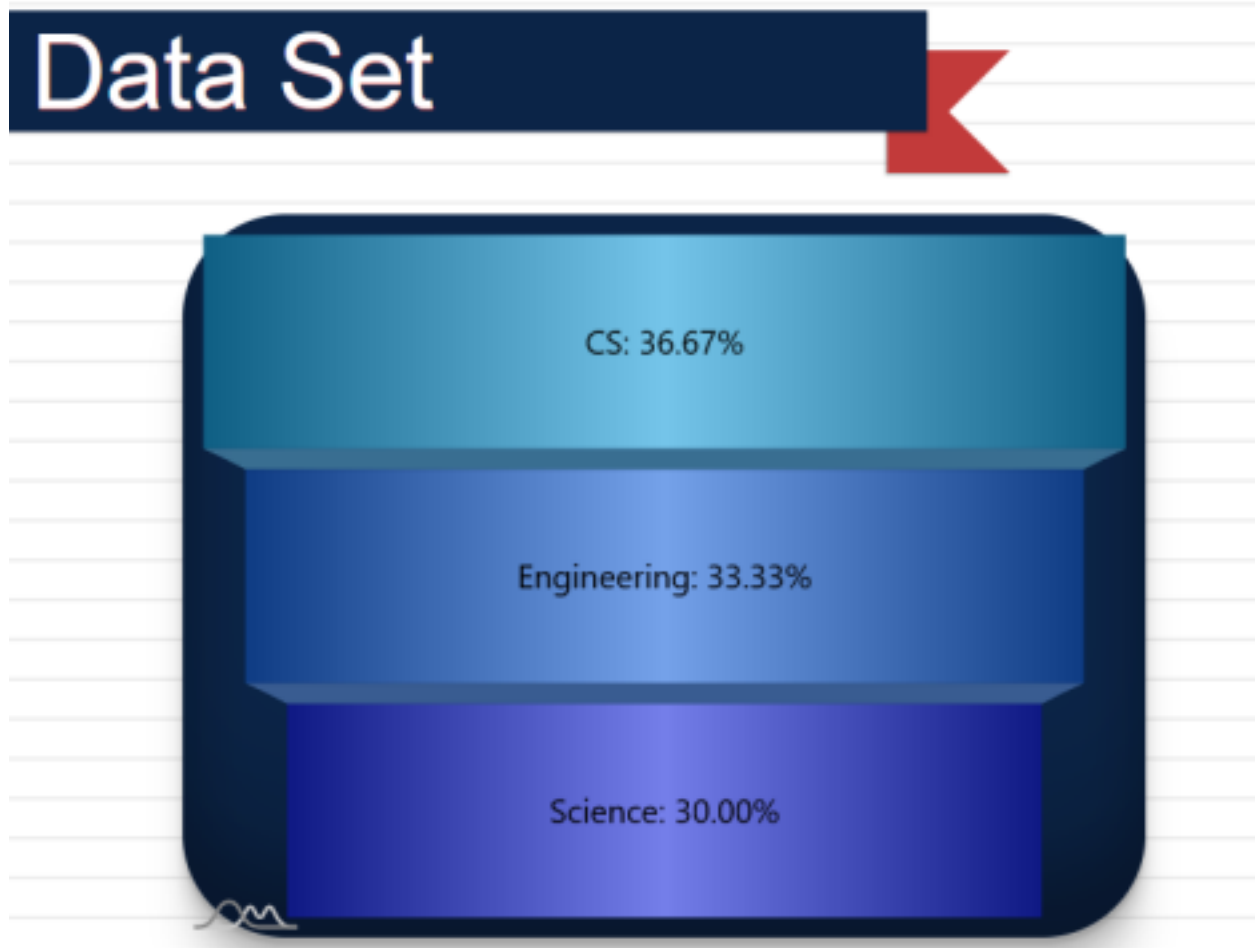
- **How it Shows Up:**

- Always visible on the dashboard.

- **Why this Chart Type:**

- Funnel charts are suitable for displaying stages in a process, making them effective for visualizing the sequential distribution of students across faculties.

Figure 2:

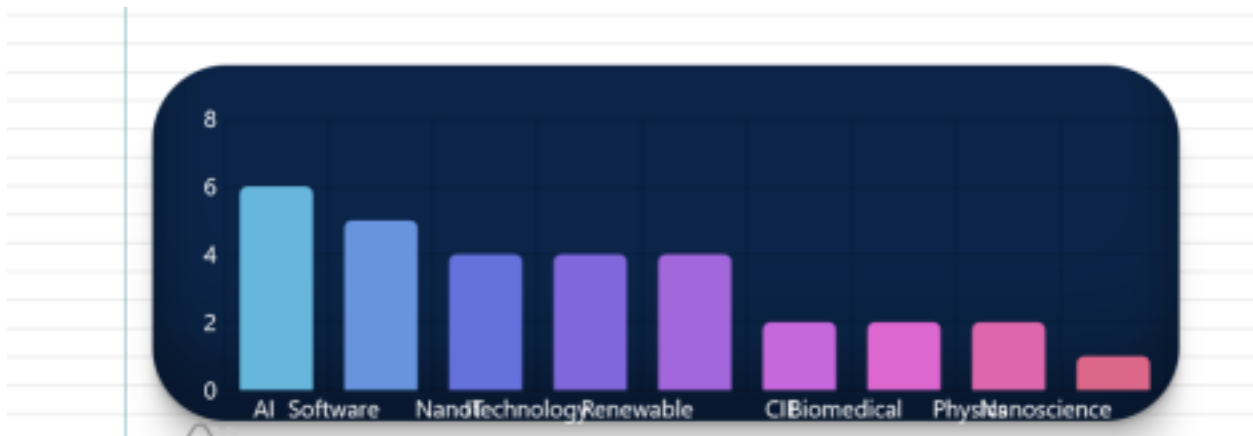


3. Bar Chart for Major:

- **Chart Type:** Bar Chart
- **Title:** Student Distribution by Major
- **Colors:** Different colors for each major
- **Legend:** Displayed to show the mapping of colors to majors
- **Questions it Answers:**
 - How many students are there in each major?
- **How it Shows Up:**
 - Always visible on the dashboard.
- **Why this Chart Type:**
 - Bar charts are excellent for comparing quantities across categories, making them suitable for visualizing the distribution

of students across majors.

- **Figure 3:**



4. **Bullet Graph for Major:**

Chart Type: Bullet Graph

Title: Distribution of Grades

Colors: Use distinct colors for each grade category (A, B, C).

Y-Axis: Grade Letter (A, B, C)

X-Axis: Number of Students

Legend: Displayed to show the mapping of colors to grade letters.

Questions it Answers:

- How is the distribution of grades among the students?

How it Shows Up:

- Always visible on the dashboard.

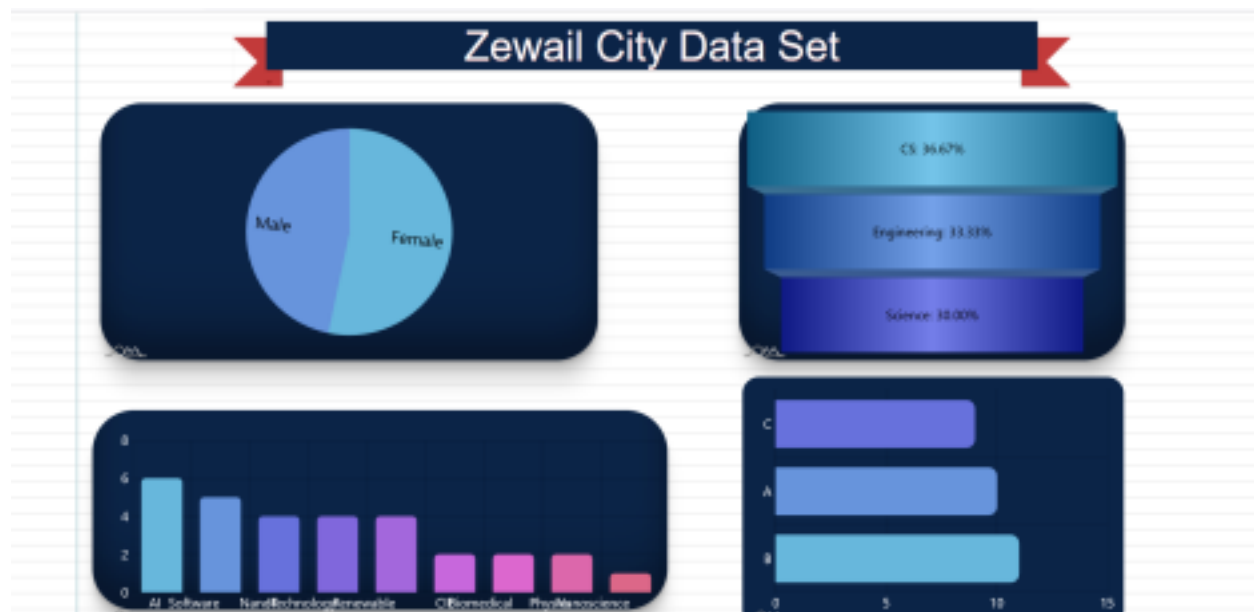
Why this Chart Type:

- A horizontal bar chart is chosen for its ability to effectively display the distribution of categorical data (grades) with a clear comparison between different Majors.

Figure 4:



- Snapshot of complete Layout
- Source code of the dashboard (with comments)



- Snapshot of the provided data (as tables)

Row_num	Major	Student_ID	Name	Phone	Street_Num	Street_Name	F_date	Gender	Email	Faculty_Name
1	AI	202201501	Hanra Abdelmoneem	1142859056	10	Nile Street	01/10/2004	Male	hanra.fekry@zewailcity,CS	Science
2	Software	202201902	Aya Ali	1142859053	20	Pyramids Street	15/02/2004	Female	aya.ali@zewailcity,CS	CS
3	IT	202201203	Reem Samy	1142859052	30	Cairo Street	10/06/2004	Female	reem.samy@zewailcity,CS	CS
4	AI	202201701	Ahmed Hassan	1142859053	40	Sphinx Street	25/04/2004	Male	ahmed.hasser@zewailcity,Science	Science
5	Software	202201002	Fatima Mohamed	1142859054	50	Pharaohs Street	30/10/2004	Female	fatima.mohamed@zewailcity,CS	CS
6	IT	202201903	Omar Ali	1142859055	60	Nile Banks	05/01/2004	Male	omar.ali@zewailcity,CS	CS
7	AI	202201004	Layla Ibrahim	1142859056	70	Nile View Street	12/03/2004	Female	layla.ibrahim@zewailcity,CS	CS
8	Software	202201005	Khaled Salah	1142859057	80	Pyramids View Street	18/09/2004	Male	khaled.salah@zewailcity,CS	CS
9	IT	202201206	Mona Hassan	1142859058	90	Cairo View Street	25/12/2004	Female	mona.hasser@zewailcity,Science	Science
10	AI	202201506	Fatima Ali	1142859059	99	Maadi Corniche	28/12/2004	Female	fatima.ali@zewailcity,CS	CS
11	Software	202201507	Youssef Samir	1142859060	100	October City Street	05/08/2004	Male	youssef.samir@zewailcity,CS	CS
12	IT	202201508	Nourhan Ahmed	1142859061	110	New Cairo Street	28/02/2004	Female	nourhan.ahmed@zewailcity,CS	CS
13	AI	202201705	Sarah Youssef	1142859064	50	Tahrir Street	30/10/2004	Female	sarah.youssef@zewailcity,CS	CS
14	Software	202201107	Youssef Ahmed	1142859065	100	October City Street	05/08/2004	Male	youssef.ahmed@zewailcity,CS	CS
15	AI	202202307	Mohamed Esmat	1142859066	100	Maadi View Street	05/07/2004	Male	mohamed.esmat@zewailcity,Science	Science
16	Nanotechnology	202202008	Mona Mahmoud	1142859068	110	Tahrir View Street	30/11/2003	Female	mona.mahmoud@zewailcity,Engineering	Engineering
17	Renewable	202202509	Amr Samir	1142859069	120	Sila View Street	15/06/2003	Male	amr.samir@zewailcity,Engineering	Engineering
18	CS	202201811	Amr Farouk	1142859070	200	Sharkia Street	11/07/2003	Female	amr.farouk@zewailcity,Engineering	Engineering
19	Nanotechnology	202201715	Sarah Youssef	1142859070	50	Tahrir Street	30/10/2003	Female	sarah.youssef@zewailcity,Engi	Engineering
20	Renewable	202201406	Mona Khaled	1142859071	60	Sila Street	05/01/2003	Male	mona.khaled@zewailcity,Engineering	Engineering
21	Nanotechnology	202202018	Mariaa Samir	1142859072	110	Tahrir View Street	00/00/0000	Female	mariaa@zewailcity,Engineer	Engineering
22	Renewable	202202519	Amr Farouk	1142859073	110	Sila View Street	11/06/2003	Male	amr.farouk@zewailcity,Engineering	Engineering
23	CS	202201811	Mona Khaled	1142859074	200	Sharkia Street	05/07/2003	Female	mona.khaled@zewailcity,Engineering	Engineering
24	Nanotechnology	202200715	Sarah Youssef	1142859075	50	Tahrir Street	30/09/2003	Female	sarah.youssef@zewailcity,Engi	Engineering
25	Renewable	202201416	Mahmoud Khaled	1142859076	60	Sila Street	05/01/2003	Male	mahmoud.khaled@zewailcity,Engineering	Engineering
26	Biomedical	202001304	Ahmed Mustafa	1142859077	40	Maadi Street	25/04/2003	Male	ahmed.mustafa@zewailcity,Science	Science
27	Biomedical	202001522	Muhammad Mahmoud	1142859078	120	Assiut Street	20/03/2002	Male	muhammad.mahmoud@zewailcity,Scie	Science
28	Physics	202001120	Norhan Adel	1142859079	250	Fayoum Street	10/11/2002	Female	norhan.adel@zewailcity,Science	Science
29	Biomedical	202001404	Mona Khaled	1142859080	70	Sharkia Street	20/09/2003	Female	mona.khaled@zewailcity,Science	Science

style.css index.html Doctor_data.csv JS bar4.js JS pie2.js server.py 1 Student_data.csv

Doctor_data.csv

```
1 Row_num,Doctor_ID,Name,phone_number,Office_location,Office_hours,Course,Address,Email
2 1,10001,'Dr. Maher','890','Academic','9 AM - 5 PM','Circuits','123 Main St','dr.maher@zewailcity'
3 2,10002,'Dr. Khalid','210','Academic','10 AM - 6 PM','Visualization','456 Elm St','dr.khalid@zewailcity'
4 3,10003,'Dr. Yousry','333','Academic','8 AM - 4 PM','Database','789 Oak St','dr.yousry@zewailcity'
5 4,10004,'Dr. Mayda','555','Academic','11 AM - 7 PM','Datastructure','101 Pine St','dr.mayda@zewailcity'
6 5,10005,'Dr. Dooa','577','Academic','7 AM - 3 PM','OOP','202 Cedar St','dr.dooa@zewailcity'
7 6,10006,'Dr. Ashraf','891','Academic','9 AM - 5 PM','Network','123 Main St','dr.Ashraf@zewailcity'
8 7,10007,'Dr. Hatem','210','Academic','10 AM - 6 PM','Visualization','456 Elm St','dr.Hatem@zewailcity'
9 8,10008,'Dr. Azza','303','Academic','8 AM - 4 PM','Database','789 Oak St','dr.Azza@zewailcity'
10 9,10009,'Dr. Hadidy','550','Academic','11 AM - 7 PM','Datastructure','101 Pine St','dr.mayda@zewailcity'
11 10,10010,'Dr. Maleed','840','Academic','9 AM - 5 PM','Probability','123 Main St','dr.Waleed@zewailcity'
12 11,10011,'Dr. Mahmoud','210','Academic','10 AM - 6 PM','DATA','456 Elm St','dr.Mahmoud@zewailcity'
13 12,10012,'Dr. Ehab','333','Academic','8 AM - 4 PM','Cloud','789 Oak St','dr.Ehab@zewailcity'
14 13,10013,'Dr. Sabah','555','Academic','11 AM - 7 PM','Reasoning','101 Pine St','dr.Sabah@zewailcity'
15 14,10014,'Dr. Shref','577','Academic','7 AM - 3 PM','Ethics','202 Cedar St','dr.Shref@zewailcity'
16 15,10015,'Dr. Mahdy','891','Academic','9 AM - 5 PM','Logic','123 Main St','dr.Mahdy@zewailcity'
17 16,10016,'Dr. Anas','210','Academic','10 AM - 6 PM','Programming','456 Elm St','dr.Anas@zewailcity'
18 17,10017,'Dr. Ahmed','303','Academic','8 AM - 4 PM','Acquisition','789 Oak St','dr.Ahmed@zewailcity'
19 18,10018,'Dr. Amr','550','Academic','11 AM - 7 PM','Physics','101 Pine St','dr.Amr@zewailcity'
20
```

✓ PROJECT DSAI 203

static

JS bar.js

JS bar4.js

JS chart.js

JS data.js

JS finish.js

JS pie2.js

style.css

templates

index.html

Doctor_data.csv

Finance_data.csv

Grades_data.csv

server.py 1

Student_data.csv

SEARCH

OUTLINE

TIMELINE

Grades_data.csv

1 Row_num,Grade_letter,Student_ID,Semester,Course_n

2 1,A,202201501,Fall,203

3 2,B,202201602,Spring,201

4 3,C,202201203,Fall,205

5 4,C,202201701,Spring,203

6 5,A,202201802,Fall,202

7 6,C,202201903,Spring,205

8 7,B,202202004,Fall,203

9 8,B,202202105,Spring,201

10 9,C,202202206,Fall,202

11 10,A,202201306,Spring,203

12 11,C,202201307,Fall,201

13 12,C,202201308,Spring,205

14 13,A,202101705,Fall,203

15 14,B,202201107,Spring,201

16 15,A,202202307,Fall,202

17 16,B,202001304,Fall,203

18 17,B,202001522,Spring,201

19 18,B,202001404,Fall,205

20 19,A,202001120,Spring,203

21 20,A,202001305,Fall,202

22 21,B,202102408,Spring,205

23 22,A,202102509,Fall,203

24 23,B,202101821,Spring,201

25 24,C,202101715,Fall,202

26 25,A,202101406,Spring,203

27 26,B,202102418,Fall,201

28 27,C,202201308,Spring,205

29 28,A,202102519,Fall,203

30 29,B,202101021,Spring,201

- Suggested future work:

The dataset provides information on students, majors, and academic records, including grades and courses. Future work could involve data cleaning, exploratory data analysis, and temporal analysis to uncover trends and patterns. Gender-based and faculty-specific analyzes could shed light on academic performance variations. Geospatial analysis using street information may reveal distribution patterns, while predictive modeling could be employed to forecast future academic outcomes and identify potential dropouts. Attention to data privacy and security is essential, and the dataset offers diverse opportunities for insights into student dynamics and performance.

[c] Explain the following for the Dashboard Layout:

Why selecting these positions for each chart, title, buttons, etc.:

- Place the pie chart for gender prominently at the top to highlight the gender distribution, as it is a key metric.
- Position the funnel chart for faculty enrollment beneath, emphasizing the breakdown of students in each faculty.
- Place the bar chart for major at the bottom to showcase the distribution of students across different majors.
- Add an overall title at the top of the dashboard for context.

Points that may be criticized in your design layout:

Color Choices:

- **Contrasting Colors:** Used to differentiate categories (e.g., gender, faculties, majors, grades).
- **Reasoning:** Improves visual appeal and helps users easily distinguish between different data points.

● **Logical Aggregation of Relevant Information:**

- **Argument:** Aggregating related information, such as gender and faculty, helps users mentally categorize the data and place it in context. This grouping aligns with the mental models users may have about student demographics and academic divisions.

● **Enhancing Comparative Analysis:**

- **Argument:** Placing a bullet graph for grades next to a bar chart for majors encourages users to make direct comparisons. This layout facilitates a deeper analysis of how grade distributions vary within each major, promoting a more nuanced exploration of the data.
- In summary, the chosen layout emphasizes logical grouping and encourages users to perform comparative analyses, providing a comprehensive and insightful exploration of student data. ●