DATA PROCESSING AND ANALYSIS

CONTENTS

1- Data Processing Steps

- The processing steps were done using Excel and Power Bi.

- The missing values and invalid values for both datasets were replaced by "Not Specified" or "Other" to avoid deleting the entire rows as doing so will change the final analysis and processing results.

- The Zip Code and State columns were excluded as it was decided to only use the City and Country columns for the geographical identifiers during the analysis

- The Date columns were transformed from 'Date and Time' data type to 'Date' as only the date will be valuable during the analysis

- Further normalization and breakdown were done for the datasets individually include:

USER DATA

- Adding primary key (USER ID) to the user data table to make it easier to navigate to certain rows and will be later used in normalization of Preferred Sponsor Column.

- Normalization of Preferred Sponsor Column into a new table for easier analysis and visualization. (This step was done using unpivot columns by power query and re-uploaded into excel)

Opportunity Sign Up and Completion Data

- Normalization of Preferred Skills Earned into a new table using both Profile ID and Opportunity ID as a composite foreign key for easier analysis and visualization. (This step was done using unpivot columns by power query and re-uploaded into excel)

2- Trend Analysis

New Sign Ups and Opportunity Applications Over Time

Number of New Users Over Time

New Opportunity Applicants Over Time
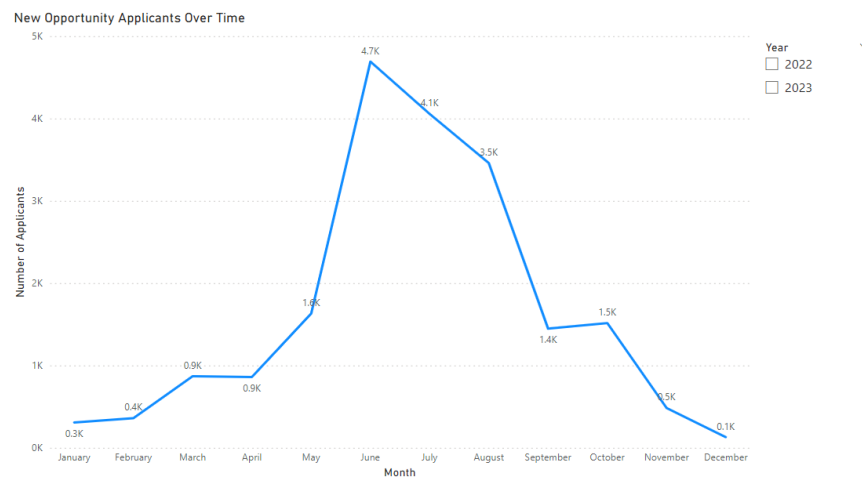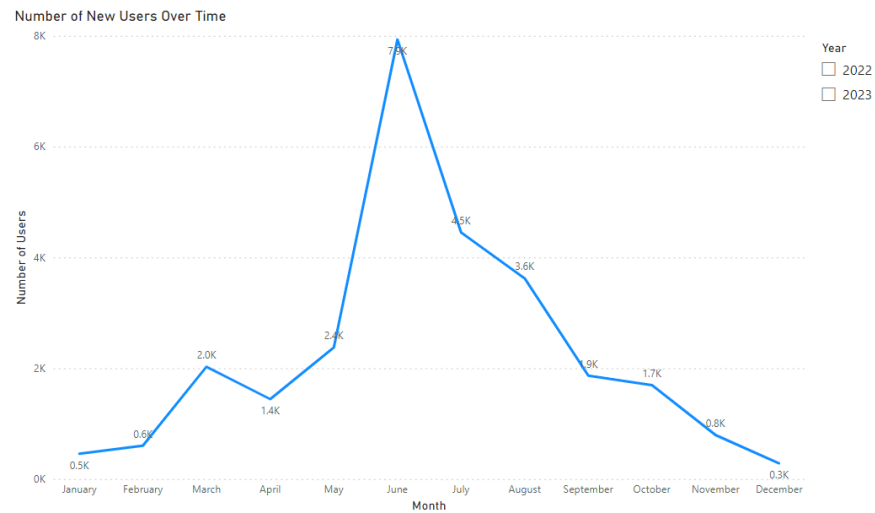
Both line graphs show sign up activity and new opportunity applications over time broken down by month and year.

<u>Global Reach</u>

Top 10 Countries Users Signed Up From

Number of Users

Legend: ■ Nepal ■ Vietnam ■ Kenya ■ Bangladesh ■ Egypt ■ Ghana ■ Pakistan ■ United States ■ Nigeria ■ India
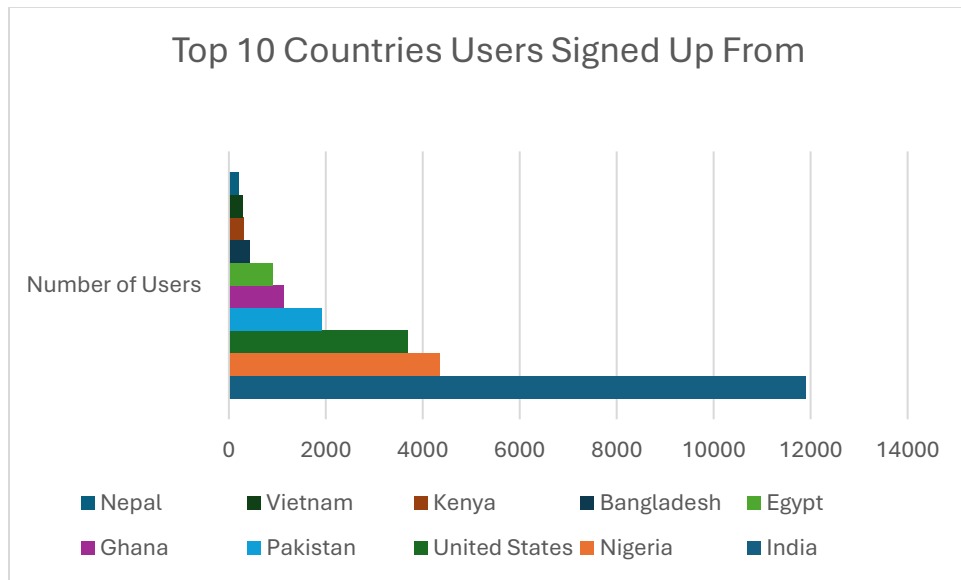
This visualization shows the top 10 countries users have signed up from.

<u>US Cities Insights</u>

Sign-Up for Cities in the US.

Country	City	Number of Users
United States	Saint Louis	2066
United States	St louis	422
United States	Chicago	186
United States	SaintLouis	68
United States	StLouis	41
United States	Maryland Heights	35
United States	Saint Louis city	34
United States	Naperville	28
United States	Chesterfield	26
United States	Saint Charles	24
United States	Schaumburg	19
United States	Ballwin	17
United States	Florissant	17
United States	Brooklyn	15
United States	San Jose	14
United States	springfield	14
United States	Aurora	13
United States	Skokie	13
United States	Valley Park	12
United States	Kansas City	11
United States	New Lenox	11
United States	STL	11
United States	Edwardsville	10
United States	Overland Park	10
United States	Scottsdale	10
United States	Frisco	9

This table visualization shows the US cities users have signed up for opportunities form and the total number of applicants for each city.

Opportunity Popularity
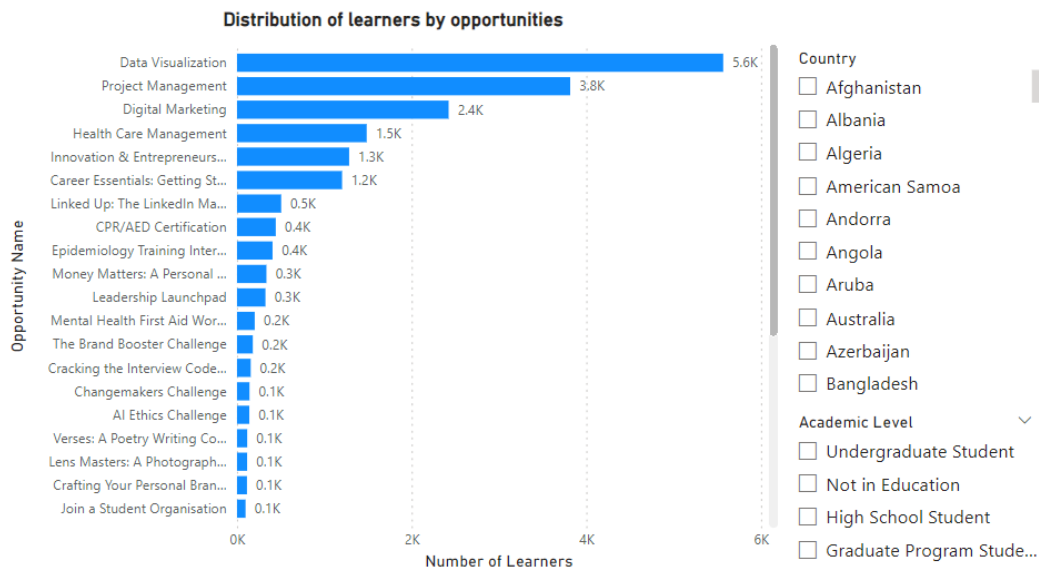
This visualization shows the most popular opportunities the users have signed up for. The slicers on the right can be used to filter out the most popular opportunities in each country or by the learners' academic levels.

Completion Trends
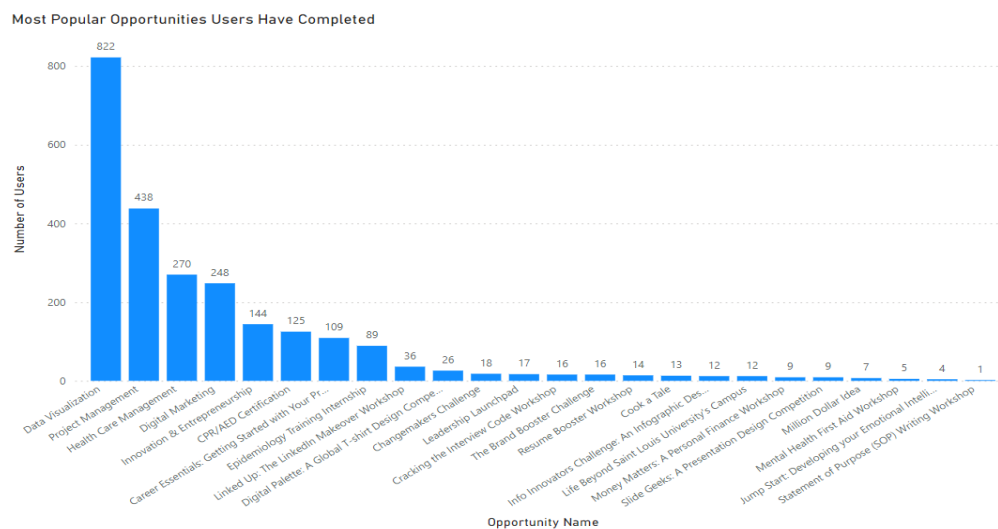
This graph shows the from the most to the least popular opportunities users have completed.

Skill Development Trends:

Most Gained Skills
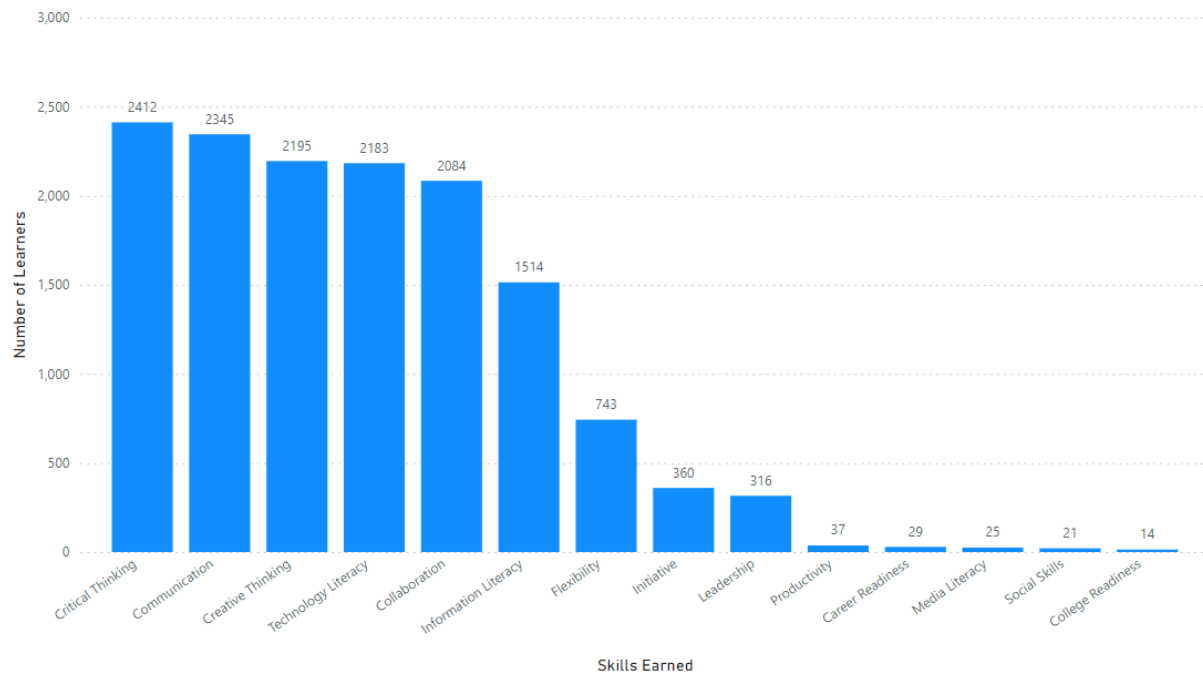
This graph shows the most gained skills on Excelerate which are "Critical Thinking" followed by "Communication".

This graph shows the distribution of skills gained on Excelerate by opportunity category. It shows that most skills are gained through Internship opportunities and the least through Event opportunities.

Breakdown of Skills Earned by Opportunity Name

Opportunity Name	Skills Earned	Number of Learners
Data Visualization	Collaboration	822
Data Visualization	Communication	822
Data Visualization	Creative Thinking	822
Data Visualization	Critical Thinking	822
Data Visualization	Information Literacy	822
Data Visualization	Technology Literacy	822
Project Management	Collaboration	438
Project Management	Communication	438
Project Management	Creative Thinking	438
Project Management	Critical Thinking	438
Project Management	Flexibility	438
Project Management	Technology Literacy	438
Health Care Management	Collaboration	270
Health Care Management	Communication	270
Health Care Management	Creative Thinking	270
Health Care Management	Critical Thinking	270
Health Care Management	Information Literacy	270
Health Care Management	Technology Literacy	270
Digital Marketing	Collaboration	248
Digital Marketing	Communication	248
Digital Marketing	Creative Thinking	248
Digital Marketing	Critical Thinking	248
Digital Marketing	Information Literacy	248
Digital Marketing	Technology Literacy	248
Innovation & Entrepreneurship	Collaboration	144
Innovation & Entrepreneurship	Communication	144
Innovation & Entrepreneurship	Creative Thinking	144
Innovation & Entrepreneurship	Critical Thinking	144
Innovation & Entrepreneurship	Flexibility	144
Innovation & Entrepreneurship	Leadership	144

Breakdown of Skills Earned by Opportunity Name

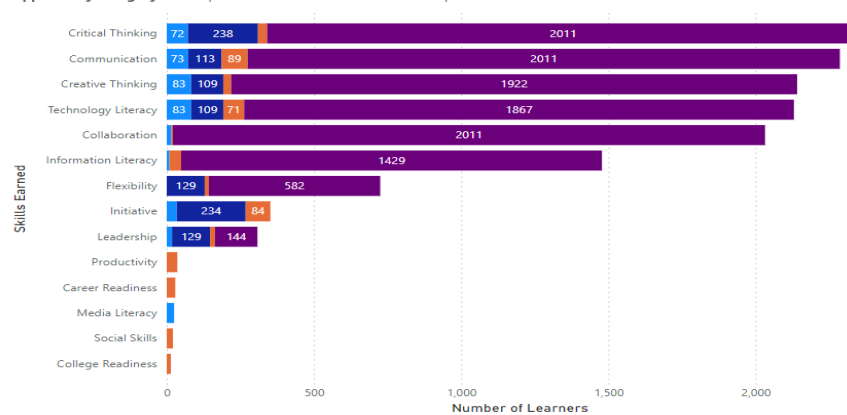| Opportunity Name	Opportunity Category	Skills Earned	Number of Learners
Data Visualization	Internship	Collaboration	822
Data Visualization	Internship	Communication	822
Data Visualization	Internship	Creative Thinking	822
Data Visualization	Internship	Critical Thinking	822
Data Visualization	Internship	Information Literacy	822
Data Visualization	Internship	Technology Literacy	822
Project Management	Internship	Collaboration	438
Project Management	Internship	Communication	438
Project Management	Internship	Creative Thinking	438
Project Management	Internship	Critical Thinking	438
Project Management	Internship	Flexibility	438
Project Management	Internship	Technology Literacy	438
Health Care Management	Internship	Collaboration	270
Health Care Management	Internship	Communication	270
Health Care Management	Internship	Creative Thinking	270
Health Care Management	Internship	Critical Thinking	270
Health Care Management	Internship	Information Literacy	270
Health Care Management	Internship	Technology Literacy	270
Digital Marketing	Internship	Collaboration	248
Digital Marketing	Internship	Communication	248
Digital Marketing	Internship	Creative Thinking	248
Digital Marketing	Internship	Critical Thinking	248
Digital Marketing	Internship	Information Literacy	248
Digital Marketing	Internship	Technology Literacy	248
Innovation & Entrepreneurship	Internship	Collaboration	144
Innovation & Entrepreneurship	Internship	Communication	144
Innovation & Entrepreneurship	Internship	Creative Thinking	144
Innovation & Entrepreneurship	Internship	Critical Thinking	144
Innovation & Entrepreneurship	Internship	Flexibility	144
Innovation & Entrepreneurship	Internship	Leadership	144

This table visualizations shows the breakdown of skills earned by both opportunity name and opportunity category. It shows that the most popular skills: "Critical Thinking", "Communication" and "Creative thinking" are mostly gained through Data Visualization followed by Project Management. Both opportunities are of the Internship category.

3- Comparative Analysis

Comparing Gender Groups
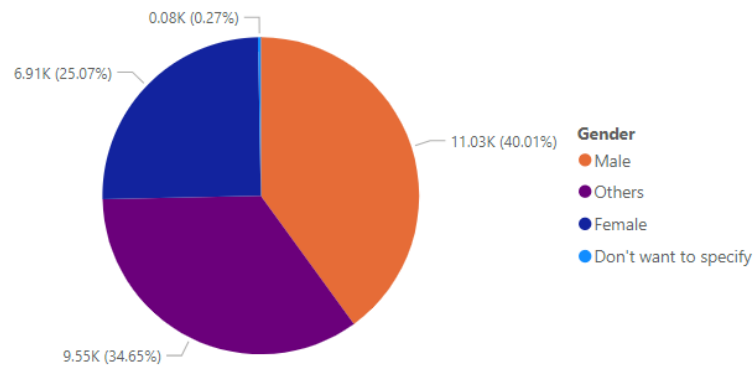
This graph compares the new user distribution across different gender groups.

Opportunity Category
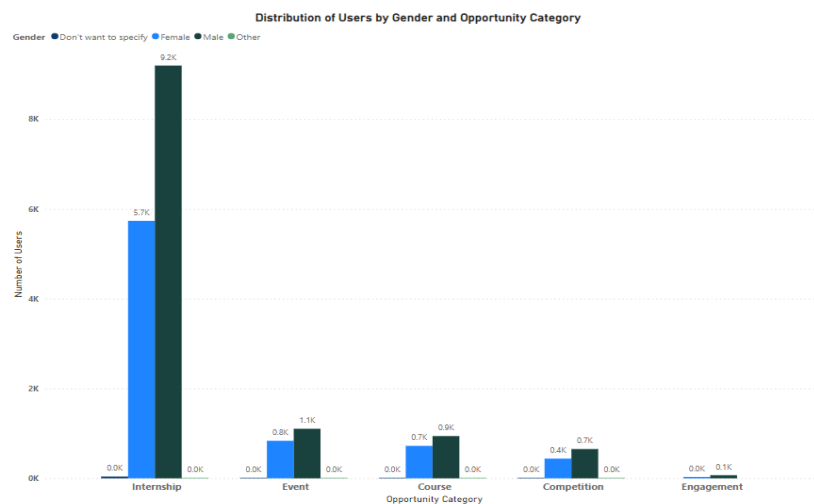
This chart compares the number of opportunity applicants for each gender group and opportunity category.

Reward Amount
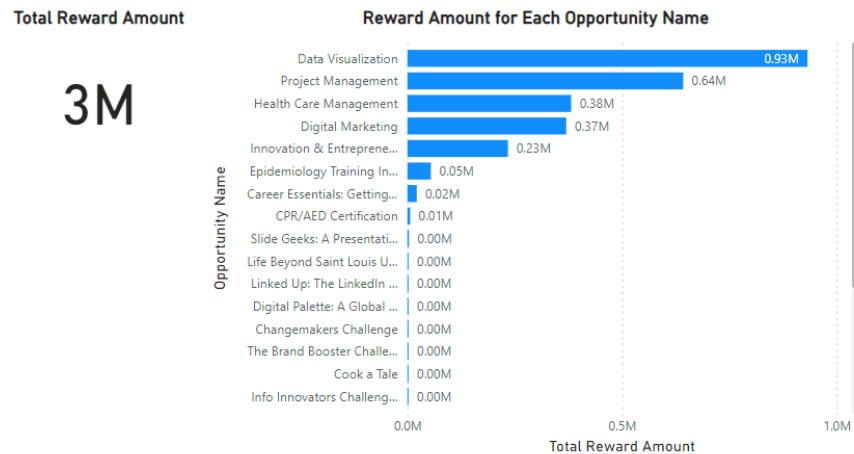
This shows the total reward amount and compares its distribution throughout the available opportunities it shows that the most amount was awarded through Data Visualization and Project Management while the least through Statement of Purpose (SOP) Writing Workshop with the amount of only 200.

Skill Points
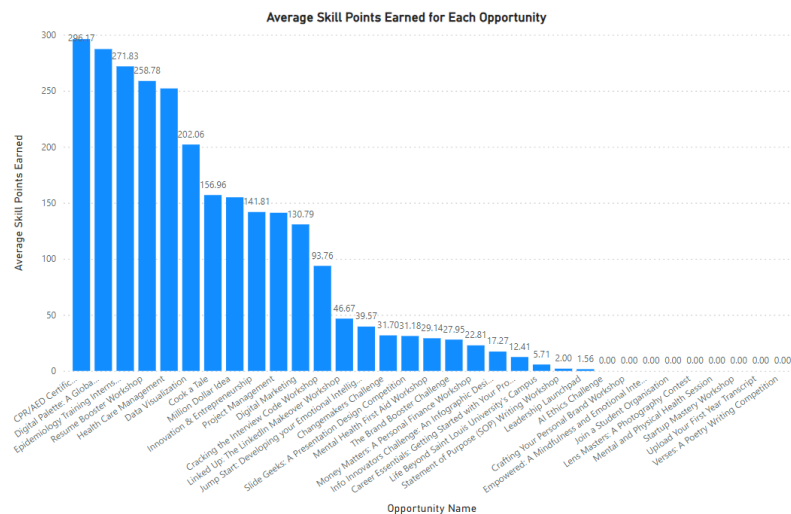
This graph compares the average skill points earned through the opportunities the learners have signed up for on Excelerate.

4- Cross-Dataset Analysis

Platform Activity

Number of people that signed up on the platform

27561

Number of people that signed up for opportunities

11481

Those card visualizations show the total number of Excelerate users and the total number of which who have applied for opportunities. 11,481 users signed up for 20,322 opportunities as one user can sign up for more than one opportunity.
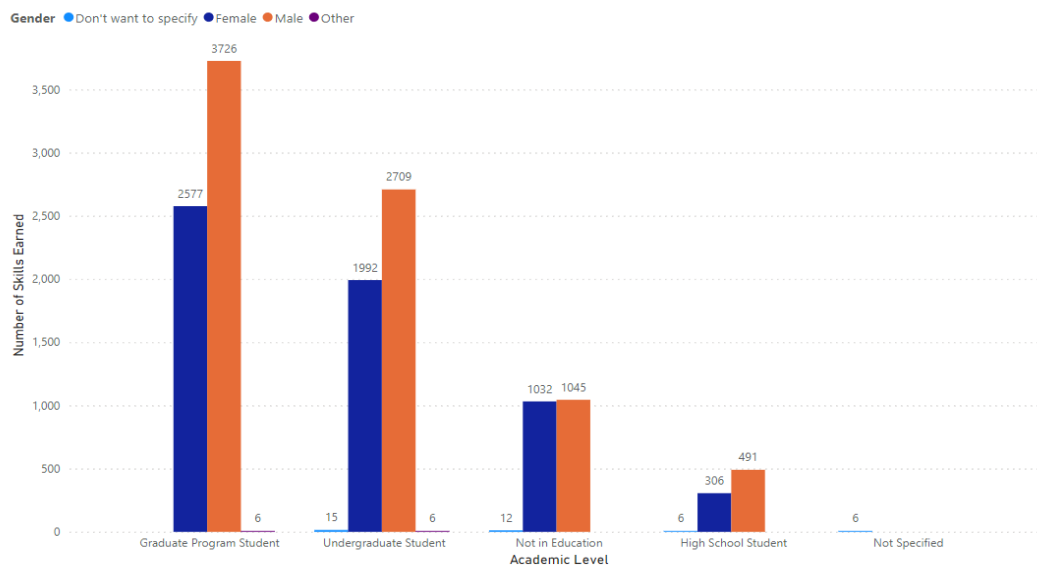
This graph shows the correlation between user demographics (Gender and Academic Level) and the skills learners earned during their participation in Excelerate opportunities. It shows that graduates have gained the most skill. As for the gender disruption, it remains inconclusive as previous graphs showed that there were about twice more male users than females on the platform.

Opportunities Users Have Completed

| Opportunity Name	Number of Users
Data Visualization	822
Project Management	438
Health Care Management	270
Digital Marketing	248
Innovation & Entrepreneurship	144
CPR/AED Certification	125
Career Essentials: Getting Started with You...	109
Epidemiology Training Internship	89
Linked Up: The LinkedIn Makeover Works...	36
Digital Palette: A Global T-shirt Design Co...	26
Changemakers Challenge	18
Leadership Launchpad	17
Cracking the Interview Code Workshop	16
The Brand Booster Challenge	16
Resume Booster Workshop	14
Cook a Tale	13
Info Innovators Challenge: An Infographic ...	12
Life Beyond Saint Louis University's Campus	12
Money Matters: A Personal Finance Works...	9
Slide Geeks: A Presentation Design Comp...	9
Million Dollar Idea	7
Mental Health First Aid Workshop	5
Jump Start: Developing your Emotional Int...	4
Statement of Purpose (SOP) Writing Work...	1

Gender
- ☐ Don't want to specify
- ☐ Female
- ☐ Male
- ☐ Other

Academic Level
- Graduate Program Student
- High School Student
- Not in Education
- Not Specified
- Undergraduate Student

This visualization shows the demographic breakdown of users who signed up and completed their opportunities using gender and academic level filters to show the number of users for each.

5- Dashboard Wireframe
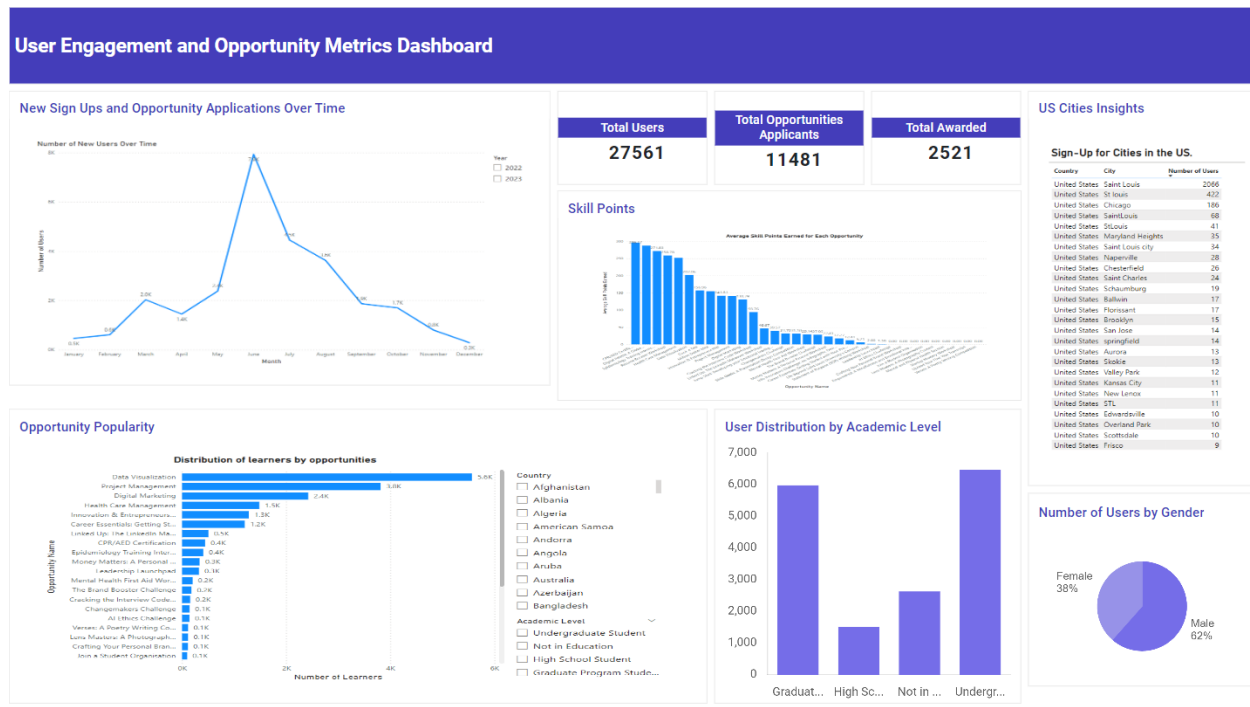
The **User Engagement and Opportunity Metrics Dashboard** features several key sections: a line chart showing new sign-ups and opportunity applications over time with year filter options; total counts for users, opportunity applicants, and awards; a bar chart of average skill points earned per opportunity; a table listing US cities with user sign-ups; a bar chart of opportunity popularity with filters for country and academic level; a bar chart of user distribution by academic level; and a pie chart displaying gender distribution of users.