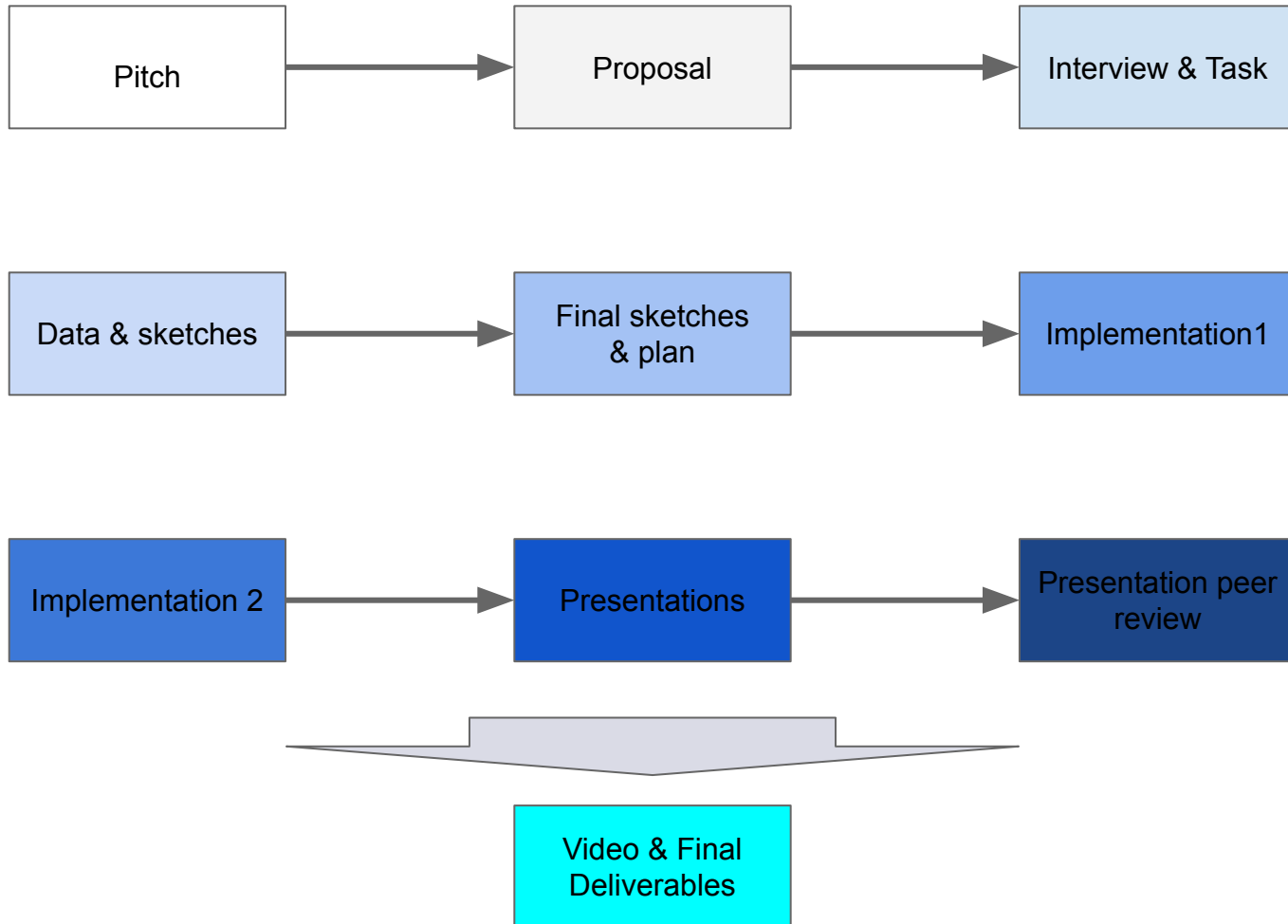# G10 - Peer Tutoring Program Visualization

Students:

Wenting Yue - Communications Director

Xiaofei Xie - Meeting Facilitator

Yuxi Shen - Group Leader

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┌─────────────┐        ┌─────────────┐        ┌─────────────┐
│    Pitch    │───────▶│   Proposal  │───────▶│Interview &  │
│             │        │             │        │    Task     │
└─────────────┘        └─────────────┘        └─────────────┘

┌─────────────┐        ┌─────────────┐        ┌─────────────┐
│Data &       │───────▶│Final sketches│──────▶│Implementation1│
│sketches     │        │& plan       │        │             │
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│Implementation 2│────▶│Presentations│───────▶│Presentation │
│             │        │             │        │peer review  │
└─────────────┘        └─────────────┘        └─────────────┘
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                       ┌─────────────┐
                       │Video & Final│
                       │Deliverables │
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Partner Information

Nicole Wang: Supervisor of the Peer Tutoring Program at Northeastern University.

She has participated in the recruiting and managing process in PTP over recent years. She is really familiar with the system and knows the potential shortage and difficulties during the growth. She has shown great enthusiasm about the partnership and is willing to give any support.
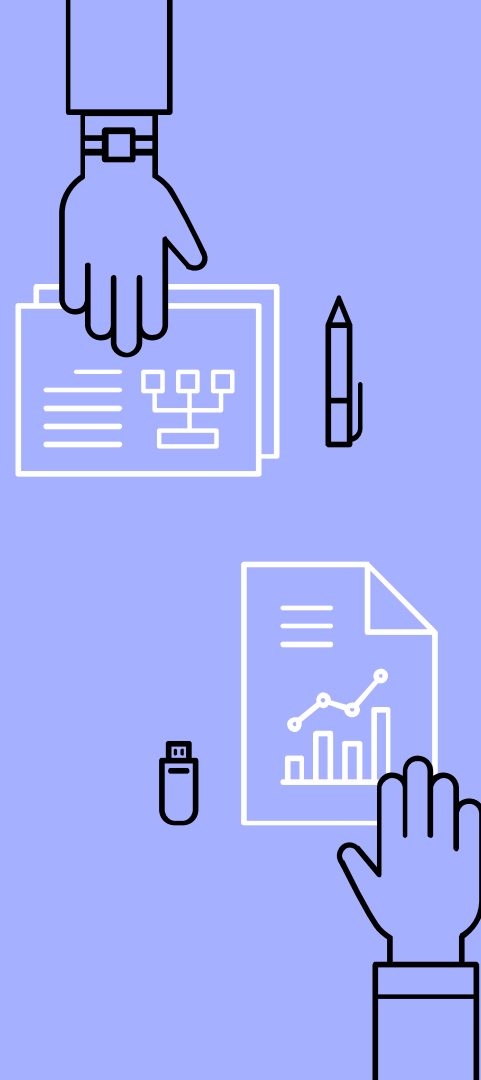
Email: n.wang@northeastern.edu

Overview

We are interested in the population/tutoring hours distribution of Northeastern's Peer Tutoring Program. We are eager to answer our partner's questions on how to improve the peer tutoring service to all undergraduate students by creating the data visualization. We would like to use our visualization techniques to display the improvements that PTP could do to enhance all students' academic performance.

Data

The dataset we use is sent by PTP collected from last semester. The dataset has separate sheets including the payroll and tutoring hours for each tutors, the tutoring hours for each course taught by each professor from each college, and a summary of total tutoring hours, sessions, and type of tutoring for each college. Nicole has preprocessed data by hiding the real name of the processor in case of the privacy of the dataset.

Dataset

PEER TUTORING PROGRAM (PTP)
OVERALL ACTIVITIES REPORT FALL 2021

PTP Tutoring by College/Center/Program	Students Tutored by College/ Program	One-on-One In-Person Tutoring Sessions	Small Group In-Person Tutoring Sessions	One-on-One Online Tutoring Sessions	Small Group Online Tutoring Sessions	Total Number of Tutoring Sessions	Total Number of Tutoring Hours
Bouve College of Health Sciences	7	8	0	3	0	11	11
College of Arts, Media, and Design	24	68	0	9	0	77	60.75
College of Engineering	1	0	0	3	0	3	3
College of Science	1,433	2,834	558	1468	122	4,982	4217.25
College of Social Studies and Humanities	191	426	22	220	0	668	491.75
D'Amore-McKim School of Business	185	407	18	228	2	655	548.75
General Studies Program (ENGW 1110)	35	14	0	21	0	65	46.75
Khoury College of Computer Sciences	145	325	75	72	4	476	409.75
NUin Online Tutoring Center	156	0	0	479	8	487	409.25
Other PTP Activities*	155					39	45
Completed Inquiries	48 PTP 56 NU Global						
Writing Center (English Department)							
GRAND TOTAL	2332	4082	673	2503	136	7463	6243.25

Tutor name	Sum of Payroll Session Duration	Number of Sessions	Number of hours
	2715	53	45.25
	3135	62	52.25
	105	2	1.75
	4230	76	70.5
	1860	35	31
	1095	30	18.25
	2805	53	46.75
	195	6	3.25

College	Course	Instructor	total number of appointments	total number of hours	one on one tutoring appointments	small group appointments
		Bouvé College of Health Sciences	11	9	11	0
Bouvé College of Health Sciences	PHTH1260	PHTH1260	11	9	11	
Bouvé College of Health Sciences	PHTH1260	A	5	4	5	
Bouvé College of Health Sciences	PHTH1260	B	3	2.5	3	
Bouvé College of Health Sciences	PHTH1260	C	2	1.5	2	
Bouvé College of Health Sciences	PHTH1260	D	1	1	1	
College of Arts, Media and Design		College of Arts, Media and Design	77	71.25	77	0
College of Arts, Media and Design	ARCH2130	ARCH2130	1	1	1	
College of Arts, Media and Design	ARCH2130	E	1	1	1	
College of Arts, Media and Design	ARTF2220	ARTF2220	1	0.5	1	
College of Arts, Media and Design	ARTF2220	F	1	0.5	1	
College of Arts, Media and Design		COMM1231	1	1	1	
College of Arts, Media and Design	COMM123	G	1	1	1	
College of Arts, Media and Design		COMM2301	12	11.75	12	
College of Arts, Media and Design	COMM230	H	3	3	3	
College of Arts, Media and Design	COMM230	I	9	8.75	9	
College of Arts, Media and Design		MSCR1220	18	17.25	18	
College of Arts, Media and Design	MSCR1220	J	18	17.25	18	
College of Arts, Media and Design		MUSC1119	23	22	23	
College of Arts, Media and Design	MUSC1119	K	23	22	23	
College of Arts, Media and Design		MUSC1201	8	6	8	
College of Arts, Media and Design	MUSC1201	L	7	5	7	
College of Arts, Media and Design	MUSC1201	M	1	1	1	
College of Arts, Media and Design		MUSC2111	11	9.75	11	
College of Arts, Media and Design	MUSC2111	M	11	9.75	11	
College of Arts, Media and Design		MUSC2350	2	2	2	
College of Arts, Media and Design	MUSC2350	M	2	2	2	

Task

1. Enable users to interact with visualization by showing the relevant information of specific data
2. Visualize the tutoring session information of instructors, courses, colleges
3. Discover the most popular classes
4. Display tutor distribution among colleges in each class

Treemap

Key Features:

- Show hierarchy structure
- Display a clear view of distributions of tutoring sessions of classes in different colleges
- Demonstrate sizes of data categories

Expectations:

- Show the popular(difficult) classes
- Display instructor information
- Exhibit equivalence of chunk area and relative amount of tutoring hours

Bar chart & Pie chart

Key Features:

- Bar chart: compare the total amount
- Pie chart: show the distribution
- Display a clear view of distributions of tutoring sessions in every colleges
- Compare the size for total number of tutoring sessions in each college

Expectations:

- Show which tutoring sessions are more effective than others within one college
- Show the college which need more help

Encoding and Design
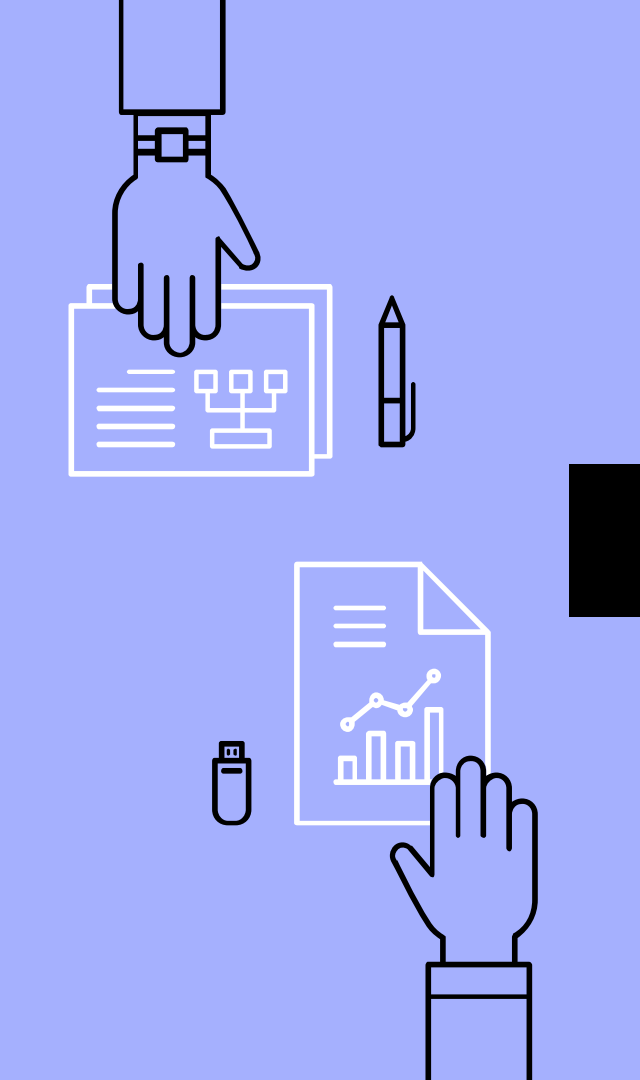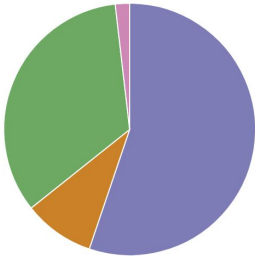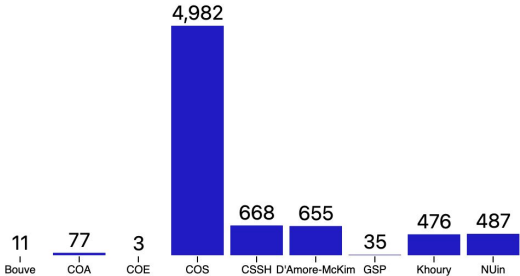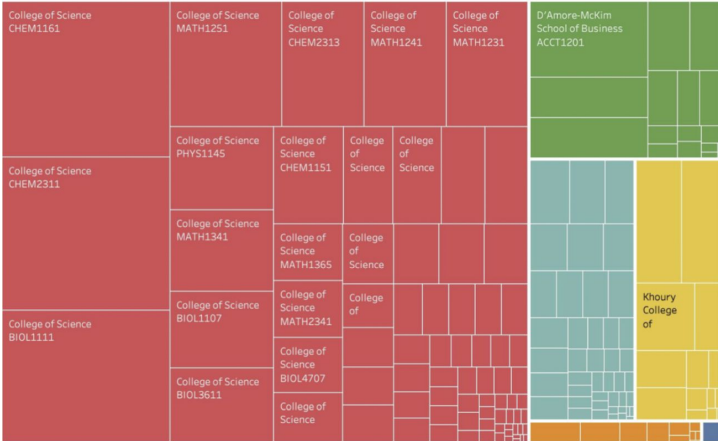
Conclusion

For treemap:
-   Most tutoring sessions held in the College of Sciences, and chemistry and biology courses have the highest need.
-   College of health sciences has the least tutoring sessions and only one course for tutoring.

For Pie chart&Bar chart:
-   One-on-one in-person is the most popular tutoring type while small-group online is the least popular type.
-   Students taking course from Khoury College of Computer Sciences has the highest preference of one for one in-person type
-   Students from NUin only have the online session
-   Tutoring courses from the College of Art, College of Engineer, and Bouve College of Health Sciences are only held in one on one format(in-person or online)

Future Plan

- Create serial data visualization to show the chronically changes of tutoring session type selection among all colleges if data provided.

- If data could be provided we could solve
    - Which courses face a shortage of tutors
    - Which tutor has the most coming-back tutees
    - Each tutor performs best in tutoring in which course
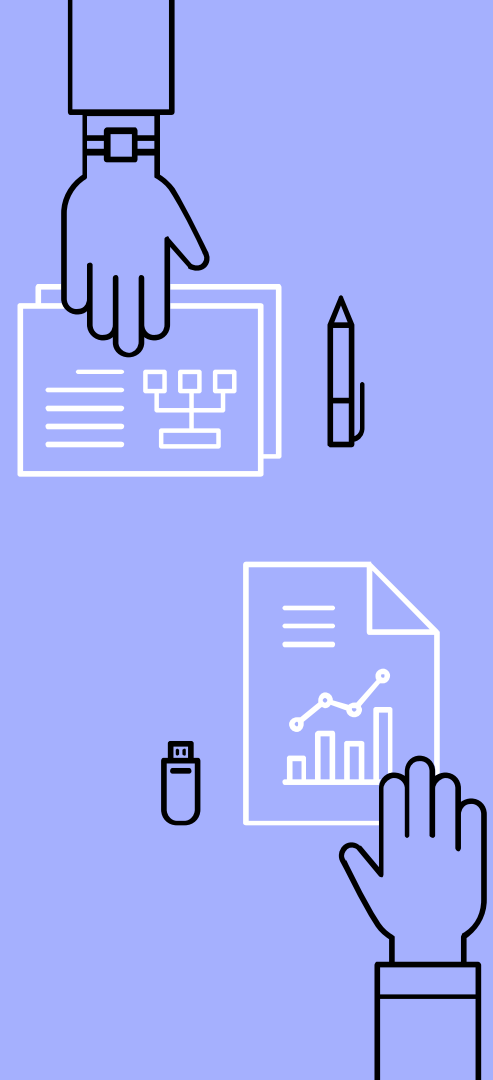
Contribution

We contribute to the slides and visualizations collaboratively, including

- ▷ Slides,
- ▷ Web page construction,
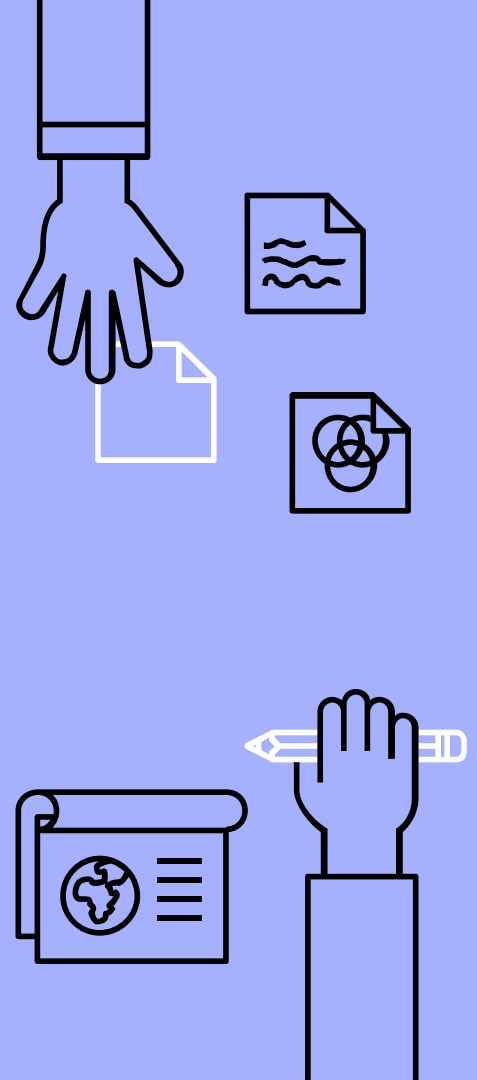- ▷ Visualization- treemap,
- ▷ Visualization- piechart & barchart.

Reference:

Dataset : Northeastern University Peer Tutoring Program(PTP)

Code of visualization:

Treemap: http://bl.ocks.org/ganeshv/6a8e9ada3ab7f2d88022

Pie Chart and bar chart: http://bl.ocks.org/cflavs/695d3215ccbce135d3bd

Q&A

Finds our web page here:
https://neu-ds-4200-s22-students.github.io/project-g10-peertutorprogram/

Original code check here:
https://github.com/NEU-DS-4200-S22-Students/project-g10-peertutorprogram