RedEye service

Presenting from Empty Duck Consulting company

WASHINGTON ST
BOYLSTON ST
BLUE HILL AVE
DORCHESTER AVE
MASSACHUSETTS AVE
HARRISON AVE
COMMONWEALTH AVE
CENTRE ST
HYDE PARK AVE
TREMONT ST
COLUMBIA RD
HUNTINGTON AVE
NEWBURY ST
GENEVA AVE
MORTON ST
BENNINGTON ST
AMERICAN LEGION HWY
ALLSTATE RD
BEACON ST
COLUMBUS AVE
SOUTHAMPTON ST
ATLANTIC AVE
CHELSEA ST
CHARLES ST
BRIGHTON AVE
PARKER ST
SARATOGA ST
WALNUT AVE
BROOKLINE AVE
GALLIVAN BLVD
HANCOCK ST
DUDLEY ST
NEW SUDBURY ST
BORDER ST
BEACH ST
HEATH ST
HARVARD AVE
GIBSON ST
DARTMOUTH ST
HANOVER ST
FREEPORT ST
E BROADWAY
MOUNT VERNON ST
NEPONSET AVE
OLD COLONY AVE
WALK HILL ST
NORTHAMPTON ST
CEDAR ST
WILLIAM T MORRISSEY BLVD
CAUSEWAY ST
MALCOLM X BLVD
FULLER ST
ANNUNCIATION RD
METROPOLITAN AVE
S HUNTINGTON AVE
MARTIN LUTHER KING JR BLV
RUGGLES ST
MAVERICK ST
ALLSTON ST
WILDWOOD ST
FAIRLAWN AVE
CUSHING AVE
HAROLD ST
E NINTH ST
GLENVILLE AVE
STRATTON ST
E SECOND ST
HEMENWAY ST
DANA AVE
MEDFORD ST
RUTHVEN ST
PLEASANT ST
CONDOR ST
ARLINGTON ST
SCHOOL ST
A ST
MOUNT PLEASANT AVE
LANSDOWNE ST
MAGNOLIA ST
MILLET ST
DRAPER ST
CAPEN ST
VINE ST
GARDNER ST
NORWELL ST
MAIN ST
BERKELEY ST
COURT ST
ESSEX ST
FRUIT ST
STUART ST
VFW PKWY
QUINCY ST
SHAWMUT AVE
HARVARD ST
CONGRESS ST
SEAVER ST
CLARENDON ST
SUMMER ST
BOWDOIN ST
FOREST HILLS ST
FANEUIL ST
NORTON ST
HAZLETON ST
MILTON ST
ALMONT ST
BAILEY ST
PRINCE ST
ARCH ST
CALUMET ST
GERARD ST
WALNUT PARK
E COTTAGE ST
LAGRANGE ST
WARREN ST
CAMBRIDGE ST
PARK ST
STATE ST
WINTER ST
BREMEN ST
W NEWTON ST
ADAMS ST
RIVER ST
CUMMINS HWY
W BROADWAY
ALBANY ST
NORFOLK ST
TALBOT AVE
PARIS ST
BOSTON ST
MERIDIAN ST
GREENVILLE ST
SCHROEDER PLZ
MARLBOROUGH ST
ROXBURY ST
MARKET ST
BROOKS ST
CANTERBURY ST
MAVERICK SQ
SOLDIERS FIELD RD
STANWOOD ST
W SPRINGFIELD ST
WELLINGTON HILL ST
CORONA ST
GEORGETOWNE DR
ROBINWOOD AVE
BLUE LEDGE DR
CHENEY ST
GENERAL LAWRENCE J LOGAN
SALEM ST
BELLEVUE ST
FAIRMOUNT AVE
CHESTNUT HILL AVE
ALLEGHANY ST
HOMES AVE
WESTLAND AVE
DR. MICHAEL GAVIN WAY
FANEUIL HALL MARKETPLACE
WINTHROP ST
BELGRADE AVE
HIGHLAND ST
N BEACON ST
SAINT ALPHONSUS ST
LEXINGTON ST
HAVRE ST
GREEN ST
MARION ST
COMMERCIAL ST
KINGSDALE ST
MAPLE ST
DEVON ST
DORCHESTER ST
E FOURTH ST
EVERETT ST
HUMBOLDT AVE
WOOLSON ST
ASHMONT ST
WILMINGTON AVE
MILK ST
AMORY ST
ROSSETER ST
ELM HILL AVE
BARRY ST
FRANKLIN ST
CHESTNUT AVE
CITY HALL PLZ
GLENWAY ST
EUSTIS ST
BERNARD ST
UNION ST
HILLSIDE ST
HIGH ST
WESTVIEW ST
INTERVALE ST
SUMNER ST
LAWRENCE AVE
GREENWOOD ST
FIDELIS WAY
ERIE ST
CANAL ST
SOUTH ST
ATHELWOLD ST
AUSTIN ST
WORCESTER ST
HOWLAND ST
SAINT BOTOLPH ST
FALCON ST
POPLAR ST
AMES ST
PETERBOROUGH ST
DEERING RD
DIMOCK ST
TOPLIFF ST
ELLINGTON ST
FRANCIS ST
KNEELAND ST
PARK PLZ
OLNEY ST
STRATHMORE RD
CHESTNUT ST
ZEIGLER ST
BOWDOIN AVE
TRUMAN PKWY
DE FIFTH ST
E SIXTH ST
NEW CHARDON ST
SEAPORT BLVD
TOWNSEND ST
BROOKLEDGE ST
WALES ST
FESSENDEN ST
STOUGHTON ST
W THIRD ST
NORMANDY ST
GROVE ST
ROCKLAND ST
TRENTON ST
MONSIGNOR DENNIS F O'CALL
FLEET CENTER PL
FANEUIL HALL SQ
LAMARTINE ST
NORTHERN AVE
WILLIAM F MCCLELLAN HWY
HOWARD AVE
CALLENDER ST
WOODROW AVE
DALTON ST
E NEWTON ST
SAVIN HILL AVE
PRINCETON ST
BRUNSWICK ST
MONSIGNOR PATRICK J. LYDO
NORFOLK AVE
FENWOOD RD
HAMILTON ST
BABSON ST
DALE ST
B ST
G ST
LEGENDS WAY
WESTVILLE ST
D ST
E EIGHTH ST
YAWKEY WAY
WARREN AVE
FAYSTON ST
LINDEN ST
WESTERN AVE
GARFIELD AVE
WOOD AVE
TEMPLE PL
MORELAND ST
PARKER HILL AVE
NIGHTINGALE ST
E BERKELEY ST
BUNKER HILL ST
WEST ST
CRAWFORD ST
ESMOND ST
LINCOLN ST
DAKOTA ST
PARK DR
COTTAGE ST
BRAINERD RD
SPRING ST
BICKFORD ST
EXETER ST
CLARKSON ST
CHURCH ST
E BROOKLINE ST
KINGSTON ST
NORTH ST

Agenda

- Introduction of RedEye
- Data Source
- Information Quality
- Wrangling Process
- Analysis and Result
- Suggestion for Future Strategy

Introduction of Redeye

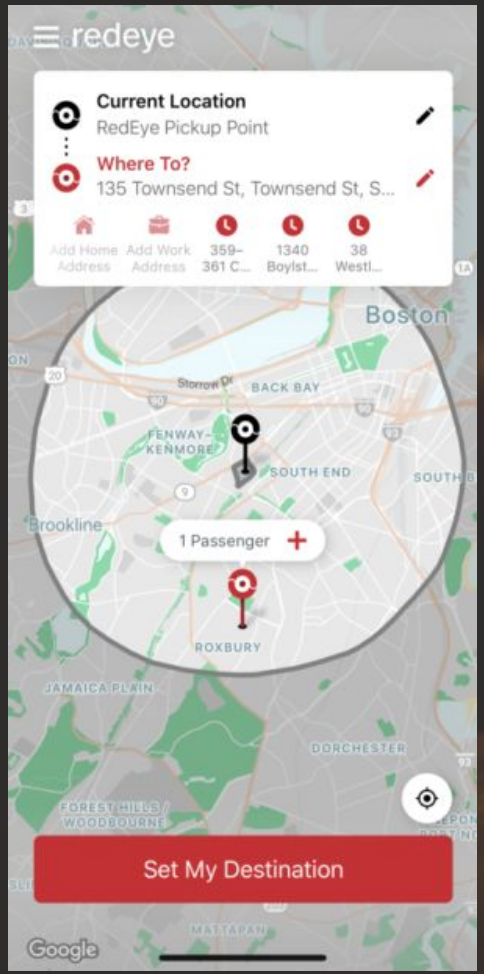
RedEye Service is an off campus safety escort available to students who live within 2 mile radius from Snell library.

Service hours: 5:00 p.m to 6:00 a.m

Accessibility: RedEye service app or at dispatch center

RedEye Service from Northeastern

- Efficiency of service
- Accessibility
- Safety of students
- Alternative commuting options
- Awareness



Data Sources

Student survey

- First hand collection of data (~80% graduate and 20% undergraduate)
- Understand more about the RedEye service itself
- Understanding pattern of students leaving campus during RedEye service hours.

Analyze Boston's Crime Incident Report

- Secondary source to supplement our current data set
- Public source
- Crimes from the start of 2022 - now, used to check safety of students during their commute to campus.

MBTA

- Chosen as a comparison for alternate commute to RedEye service.
- Understand reliance and communication of MBTA services.
- Public source

Information Quality

Crime Data Set

Dataset statistics	
Number of variables	17
Number of observations	63367
Missing cells	126886
Missing cells (%)	11.8%
Duplicate rows	0
Duplicate rows (%)	0.0%
Total size in memory	8.2 MiB
Average record size in memory	136.0 B

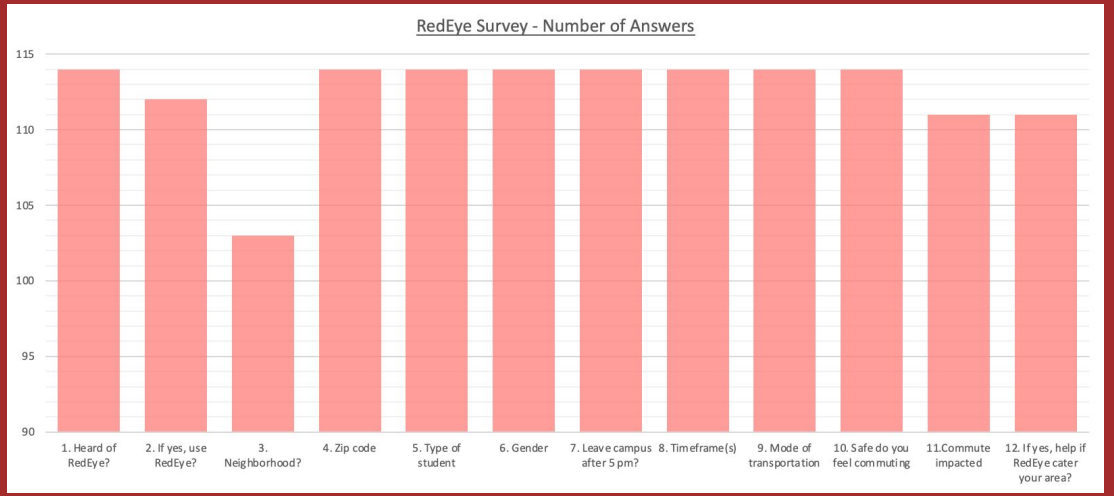
Variable types	
Categorical	10
Numeric	5
Unsupported	2

- 99% of the missing cells belong to intern variables which are not core for our analysis.
- 1% of missing values in the 13 core variables that are present in our data wrangling process.
- Around 3,000 observations without Latitude and Longitude
- 119 different types of “Offense Description”: Investigate Person, Sick Assist and Property Damage has the higher number of incidents.
- Roxbury district with higher number of incidents.

Information Quality

RedEye Survey

Dataset statistics	
Number of variables	12
Number of observations	114
Missing cells	19
Missing cells %	1.4%



- 12 questions: 19 missing cells which represent 1.4% of our data.
- Variable with more missing cell: Neighborhood.

Zip code

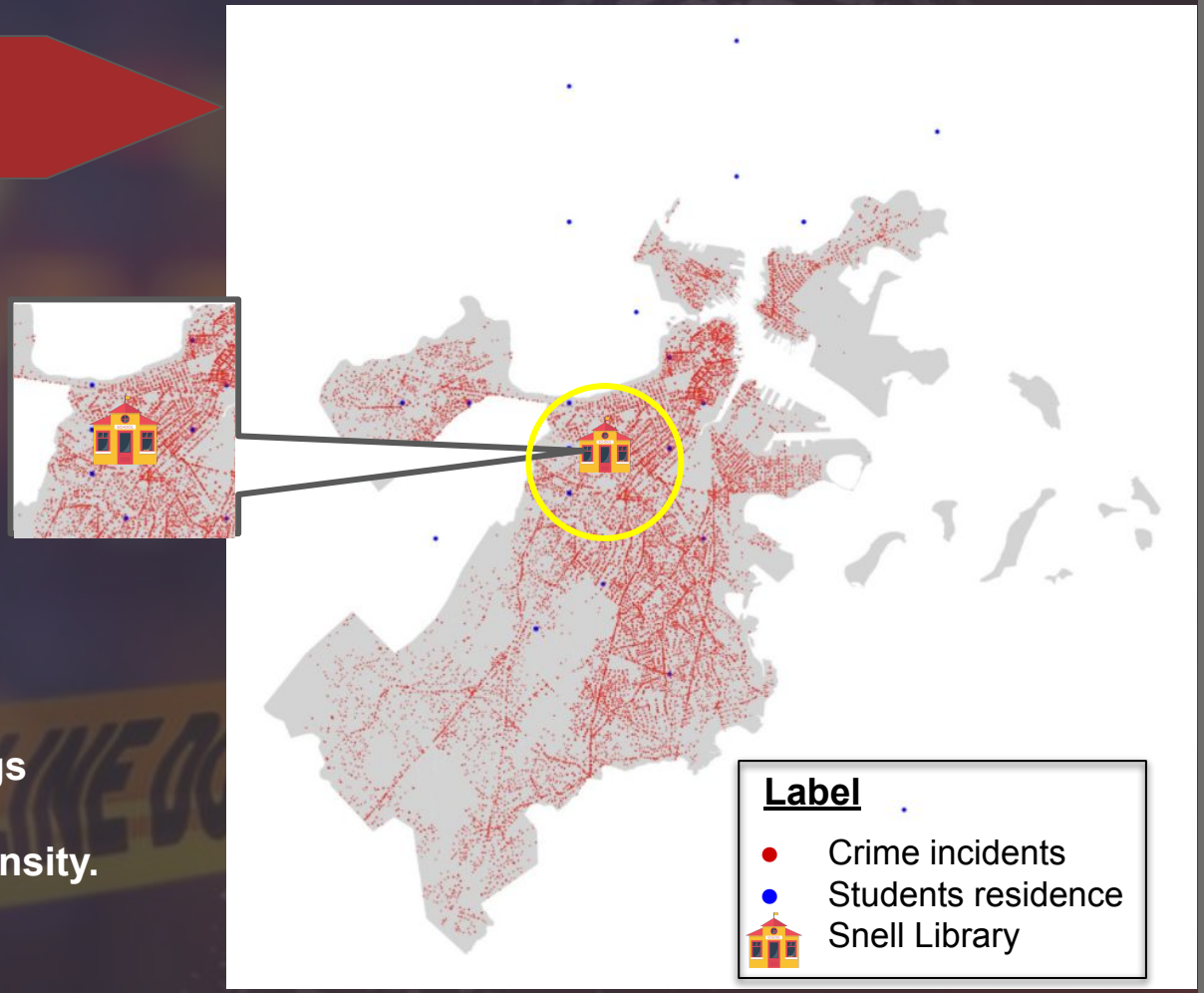
Wrangling Process

Highlights

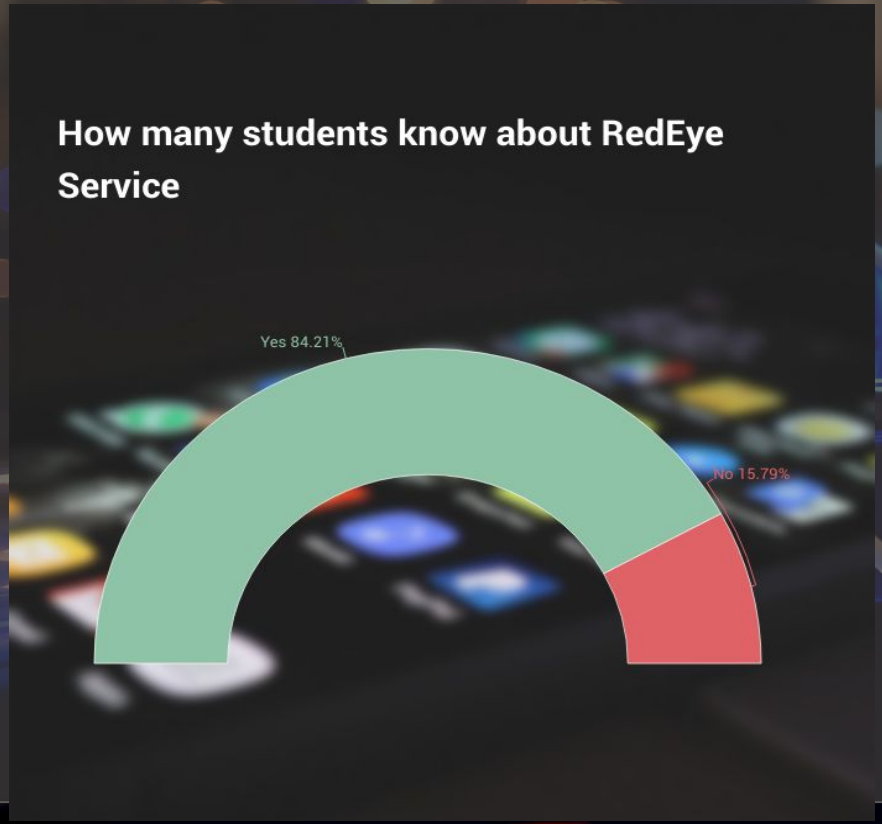
Using GeoPandas we could plot a map with markers indicating our findings on Python.

Challenges

Dealing with outliers (zip codes)
Removing invalid crime reportings
Rectifying false zip codes
Does not show the population density.



Student survey



- Know about accessibility, safety and alternate commute options.
- 114 responses which included both undergraduate and graduate students.

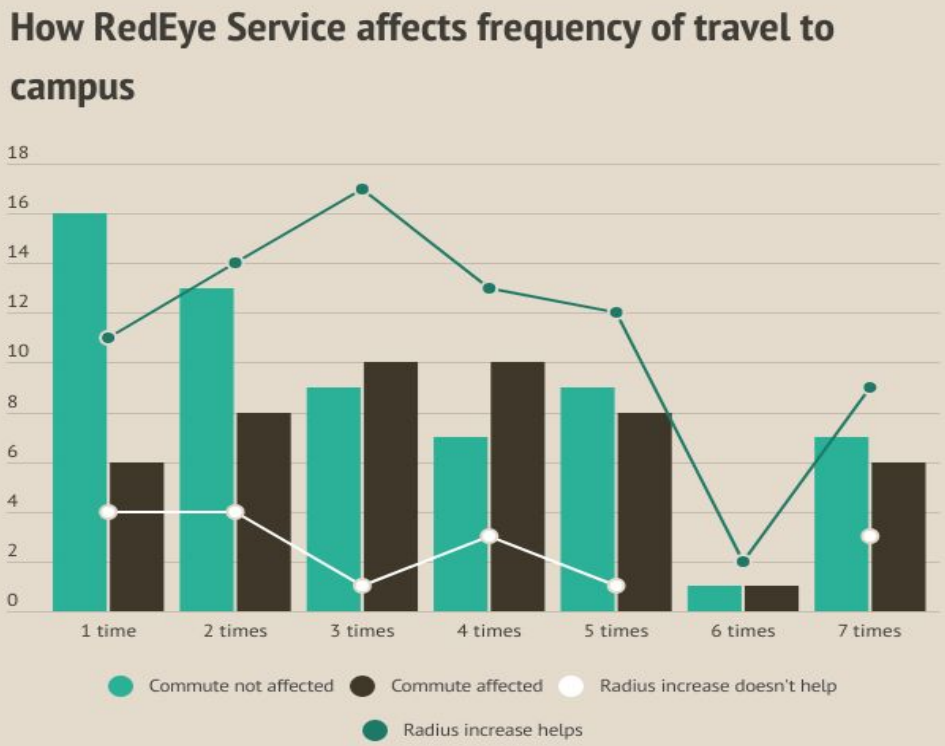
Awareness :
There are still about 15% of students who do not know about RedEye services. Mainly graduate students who tend stay back at university until late night and having a higher travel rate to campus.

Analysis and Results

Heat Map

- 49% of students feeling safe after leave campus by 5pm
- Heat map ⟶ showing students' accommodation surrounded by crime.
- ★ Roxbury, South end, Mission hill
- There are many students' accommodation included in the drop off radius.

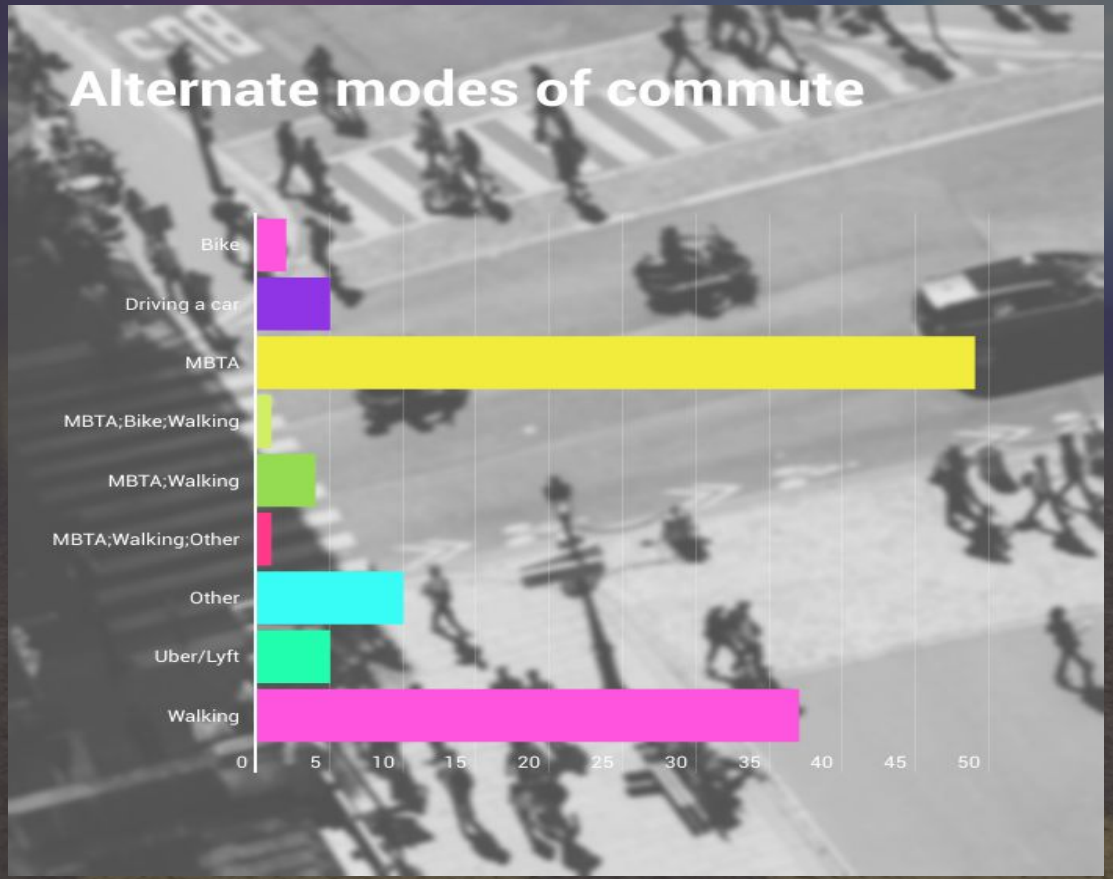
Student Survey



Frequency of commute

- Check the correlation between students travel frequency and their options of commute at night.
- Once a week frequency commute is not affected.
- With higher frequency there is an increase of students being affected due to commute options.
- Most students have responded positively to our suggestion of increasing the 2 Mile radius of RedEye.

Student Survey

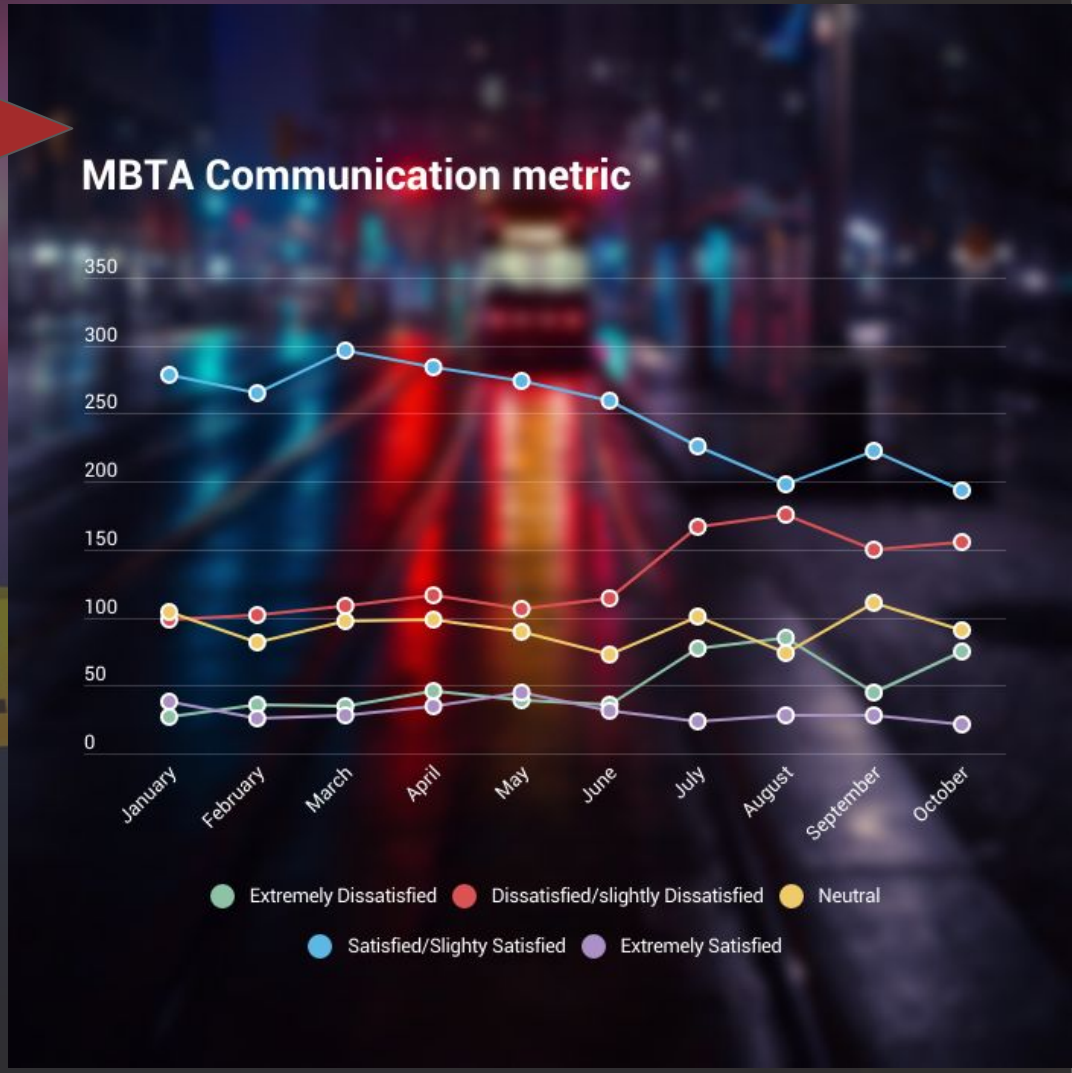


Alternate mode of commute:

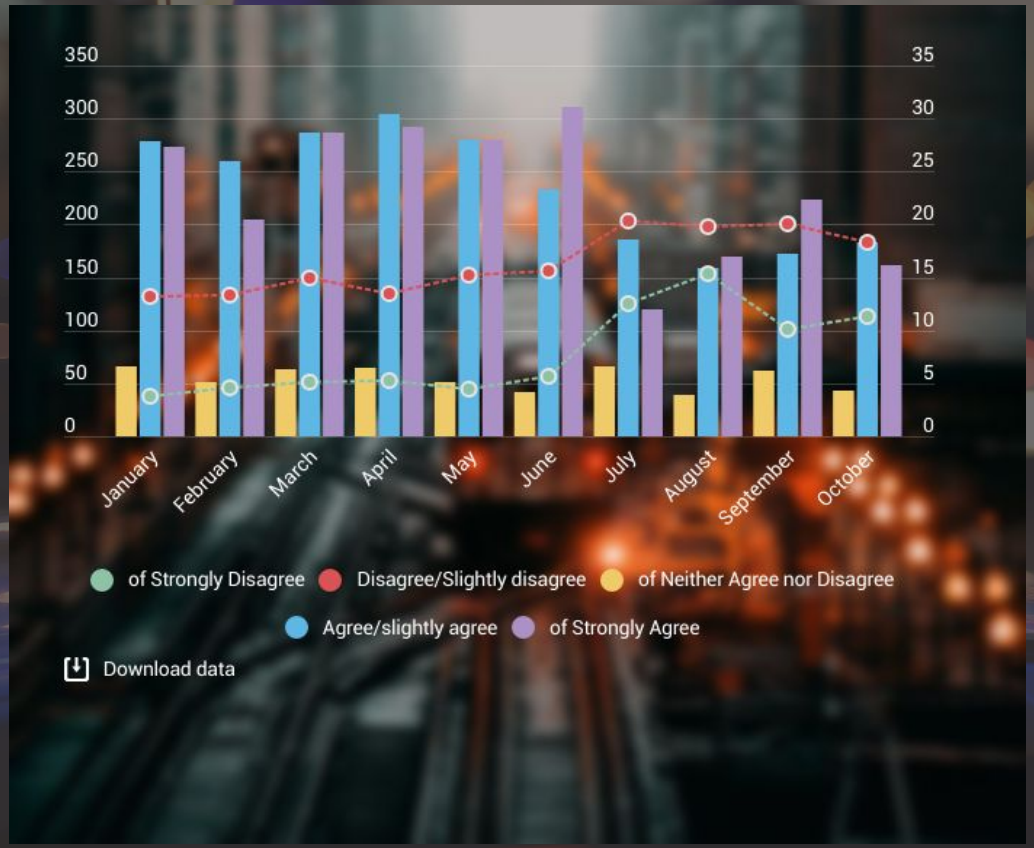
- Know other mode of transportation students use.
- MBTA has the most frequent travellers after walking.
- Walking is still preferred by many whose area of residence is not far from college.
- Students have chosen different combinations of commute depending on the time of departure.
- Ubers and cars were preferred more during late nights.

MBTA Communication Metric

- MTBA was chosen as the most frequent alternate commute.
- Surveys taken by MTBA to see customers satisfaction.
- Steady increase in customer dissatisfaction since July. Due to miscommunication/delay in announcements.



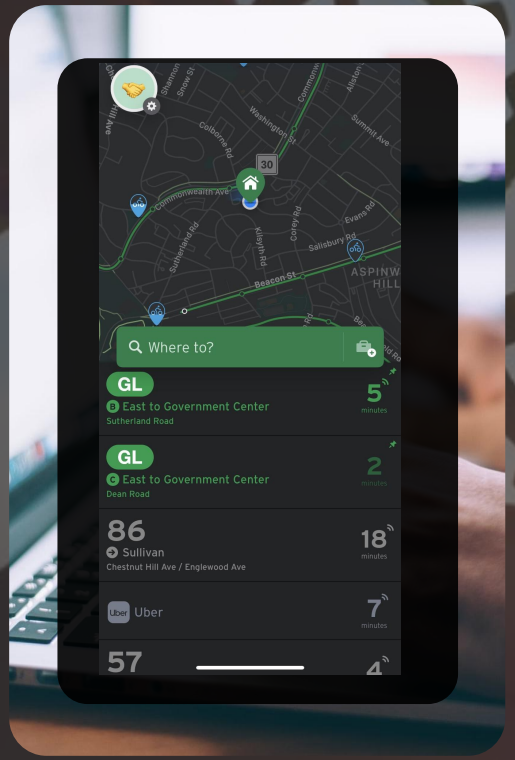
MBTA Reliance Metric

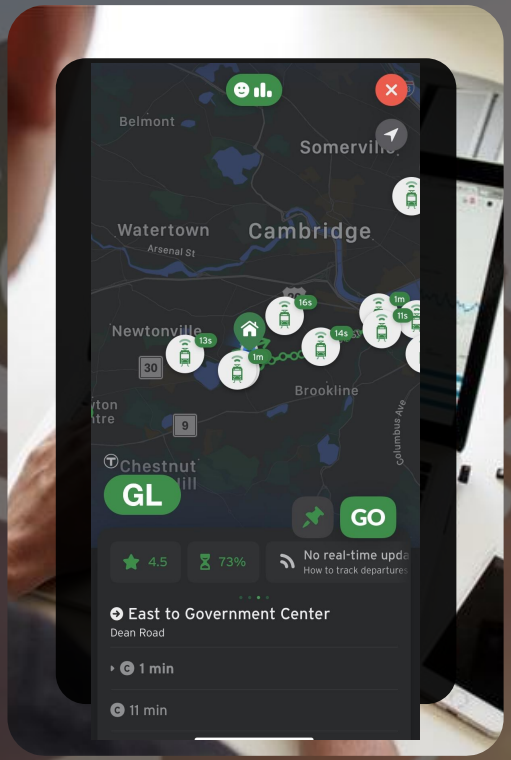


- Time is crucial to students, hence we wanted to check reliance of MBTA timings.
- Steep incline from June to August in extreme dissatisfaction and most disagree on the fact that MBTA trains are on time.
- With exams and winter seasons it would be difficult for students to commute.

Suggestion for future strategy

redeye ✕ transit





- Collaborate with Transit platform, providing real-time transit data.
- Exclusive access link to Northeastern student account to download the app.
- Target larger audience by using well known app.
- Improve the efficiency of the service.
- Expand the 2 - mile radius to cover the high crime rate neighborhood.