



BUDT704_Project_0507_08 Presentation

2021/12/07



UNIVERSITY OF
MARYLAND

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Introduction

Mission statement

- To identify variables that are correlated to the desired outcomes of higher event attendance of first time attendees and major gift prospect attendees.
- To improve strategies of planning future events to engage more alumni in these two groups.

Objective

- Based on the variables provided in the dataset, how can we get more first time attendees to attend our events?
- Based on the variables provided in the dataset, how can we get more major gift prospects to attend our events?

Methods - Library

Pandas -> dataframe manipulation

Numpy -> numerical data

Matplotlib -> plotting

Seaborn -> plotting

Calendar -> get the weekdays

Sklearn(GaussianProcess) -> regression analysis

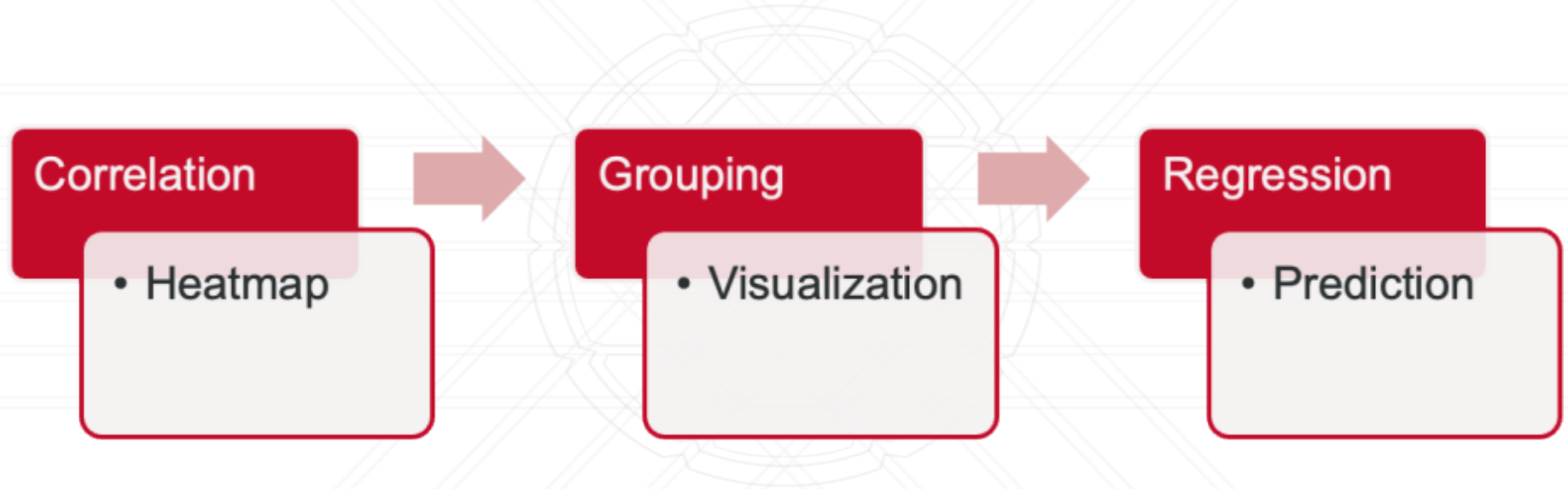
```
#import library using alias
import pandas as pd
import datetime as dt
import seaborn as sns
import matplotlib.pyplot as plt
import calendar
import numpy as np
from sklearn.linear_model import LinearRegression
from sklearn.preprocessing import LabelEncoder
from sklearn.model_selection import train_test_split
from sklearn.gaussian_process import GaussianProcessRegressor
from sklearn.gaussian_process.kernels import DotProduct, WhiteKernel
from sklearn import metrics
```

Methods – Data Source

	Event Name	Activity Code	Activity Description	Location Code	Location Description	Group Code	Group Description 1	Group Description 2	Event Date	Month	...	First Time Attendees	Percentage First Time Attendees	Major Prospects	Percentage Major Prospect	Year	Weekdays	Weekend	Location Category	Group Category	Activity Category
0	Ocean City Summer Party	PEZOC	CP AAE-Ocean City Summer Party	PDES	CP DMV-Eastern Shore	PS9	CP Social	General	2019-07-06	7	...	5	0.079365	12	0.190476	2019	Saturday	Weekend	6	31	328
1	Neurodiversity on Campus and in the Workplace ...	PEAPC	CP AA-Special Topics Webinar	POWE	CP Online-Webinar	PC9	CP ProDev	General	2019-07-10	7	...	1	0.142857	0	0.000000	2019	Wednesday	Weekday	26	9	177
2	Northern NJ Terps TPN	PEANJ	CP AA-Northern NJ Terps TPN	PNNJ	CP Northeast-NNJ	PC9	CP ProDev	General	2019-07-11	7	...	2	0.071429	2	0.071429	2019	Thursday	Weekday	22	9	159
3	Philly Terps: Young Alumni Happy Hour Summer S...	PEAP1	CP AA-Philly Young Alum HH Summer Series	PNPB	CP Northeast-Philadelphia	PS9	CP Social	General	2019-07-11	7	...	0	0.000000	0	0.000000	2019	Thursday	Weekday	24	31	174
4	Philly Terps Suite Night at the Ballpark	PEAP4	CP AA-Philly Terps Ste Night at Ballpark	PNPB	CP Northeast-Philadelphia	PS9	CP Social	General	2019-07-14	7	...	3	0.136364	0	0.000000	2019	Sunday	Weekend	24	31	176

- Weekdays & Weekend
- Month
- Group description 1 & 2
- Location, Group, Activity Category
- 622 rows × 22 columns

Methods



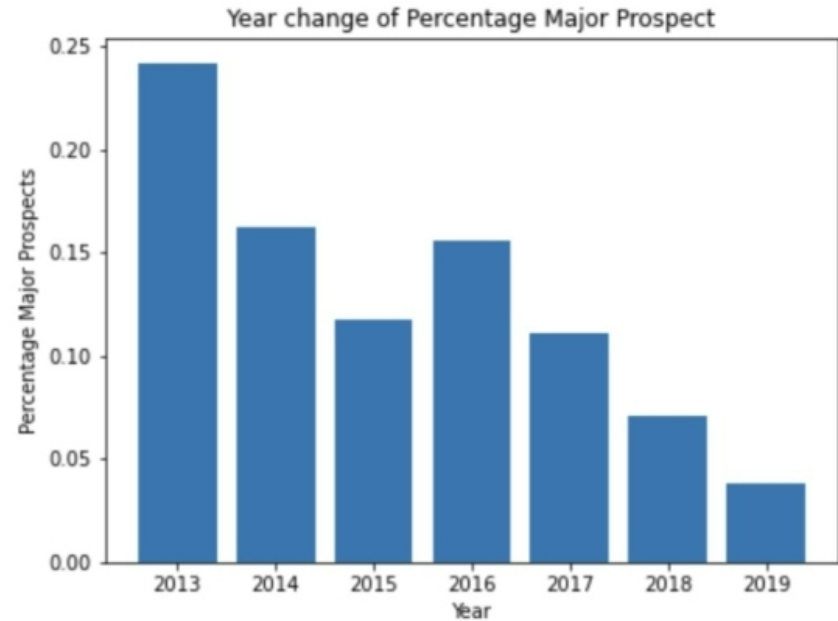
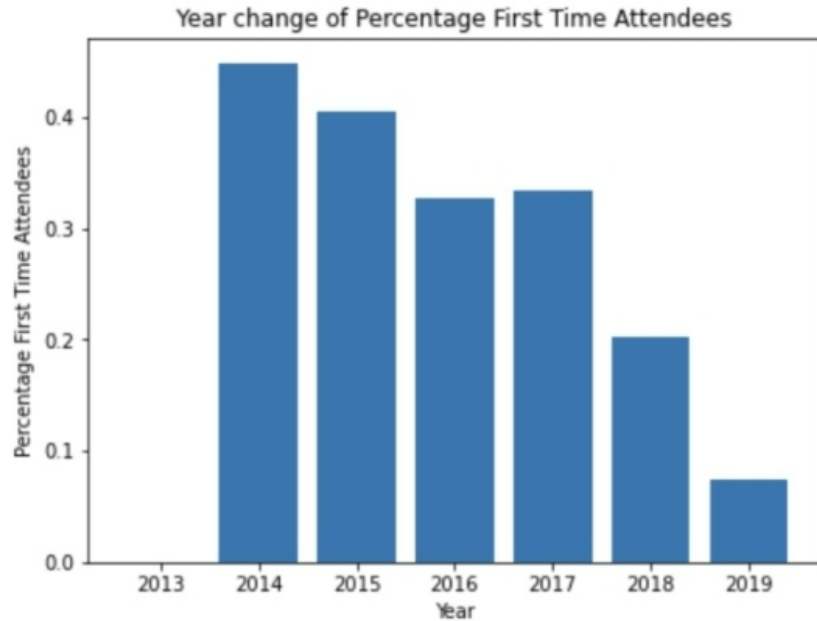
Correlation Matrix



Percentage Major Prospect:
Average Age 0.55

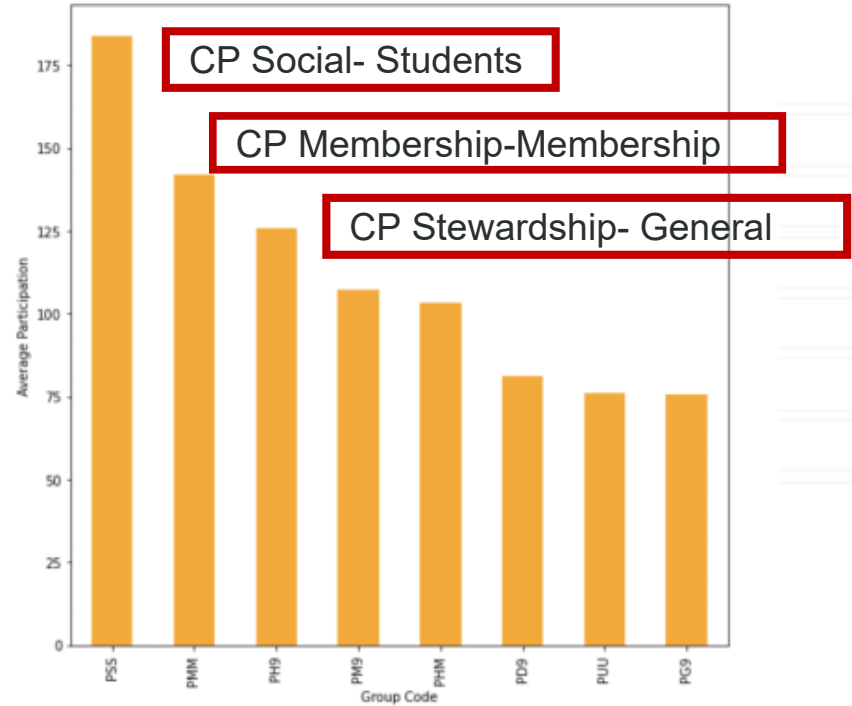
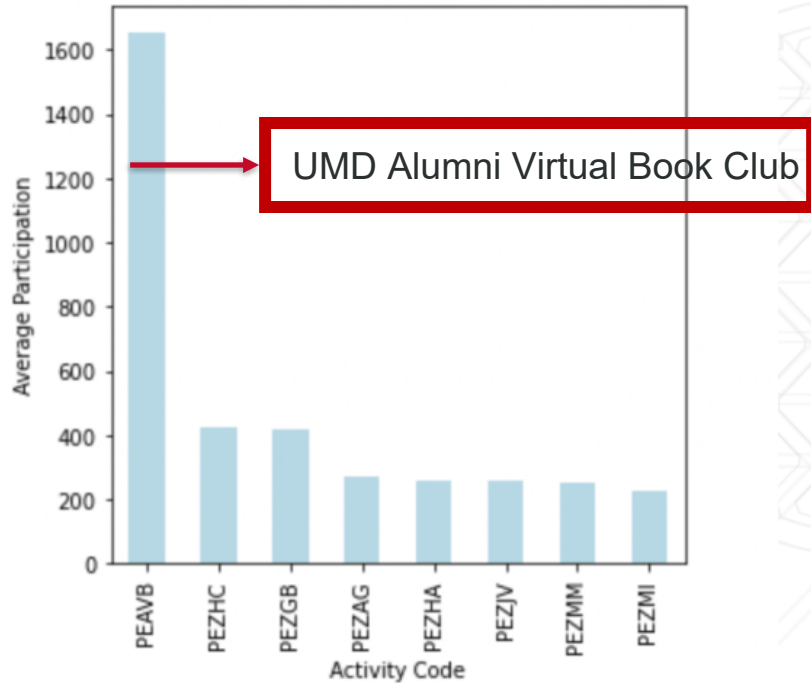
First Time Attendees:
Participated 0.84

Findings- Time Series

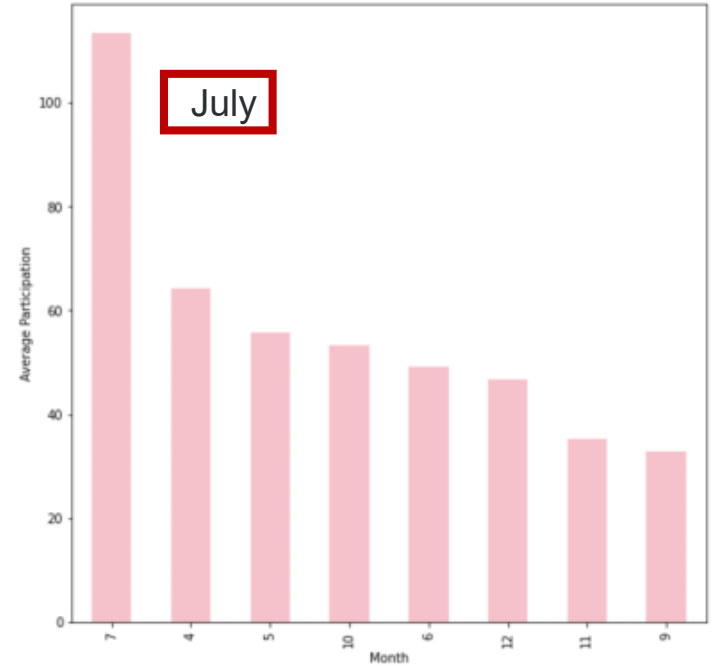
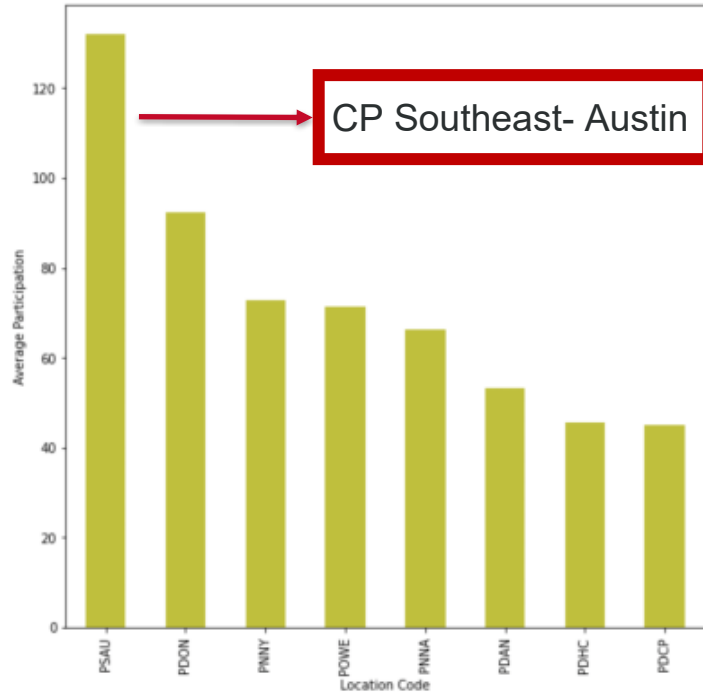


Gradual yearly decrease for both first time attendees and major prospects

Findings- Participation

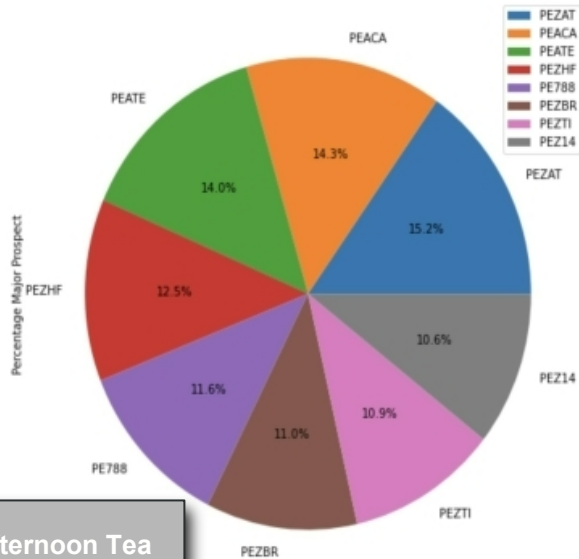


Findings- Participation



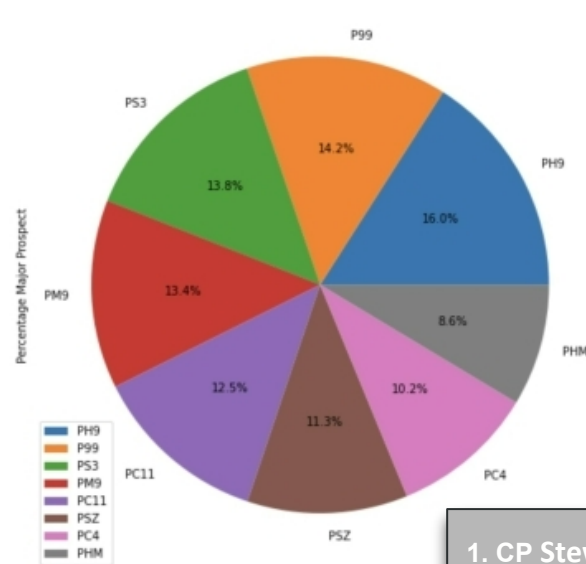
Findings- Major Prospects

ACTIVITY CODE



1. Donna C. Aldridge Afternoon Tea
2. DDC Terps C-Suite Alumni Meet Up
3. Tawes Crab and Clam Bake

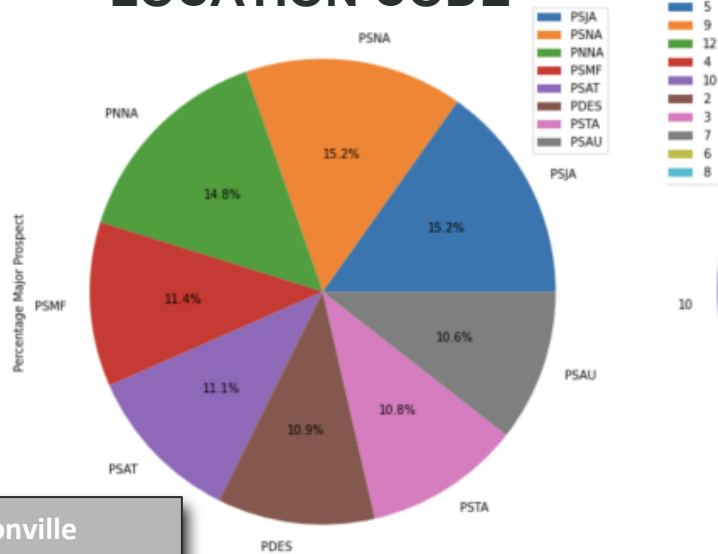
GROUP CODE



1. CP Stewardship - General
2. CP General - General
3. CP Social - Emeriti

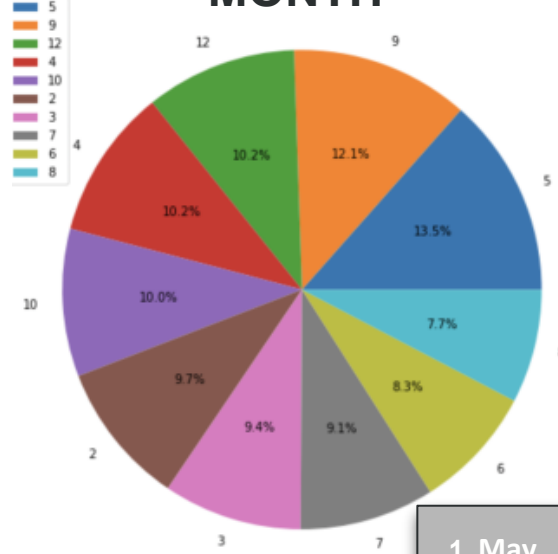
Findings- Major Prospects

LOCATION CODE



1. CP Southeast-Jacksonville
2. CP Southeast-General
3. CP Northeast-General

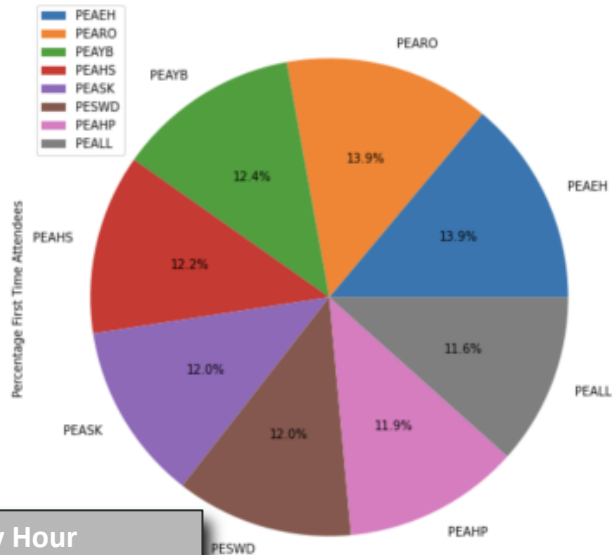
MONTH



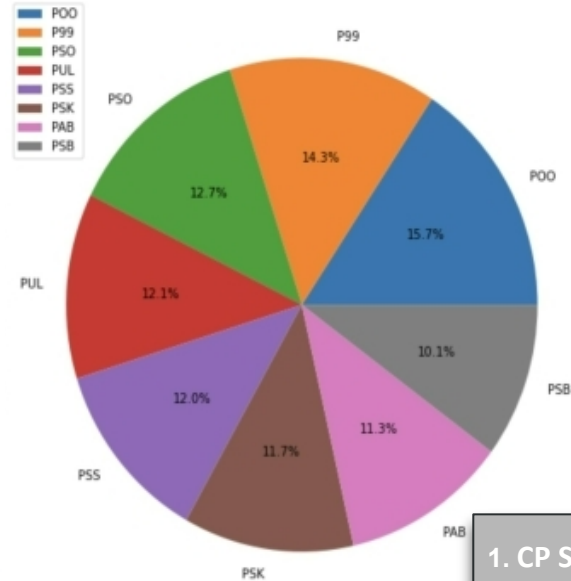
1. May
2. September
3. December

Findings- First Time Attendees

ACTIVITY CODE



GROUP CODE

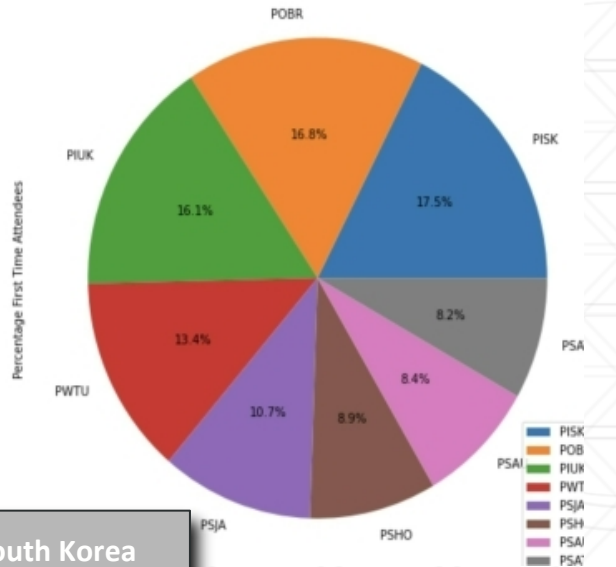


1. ENGR Terps Happy Hour
2. Riggs Alumni Cntr Rental One Time
3. RG Federal Hill Yoga & Brunch

1. CP Service - Muslim
2. CP Social - General
3. CP Service - MAM

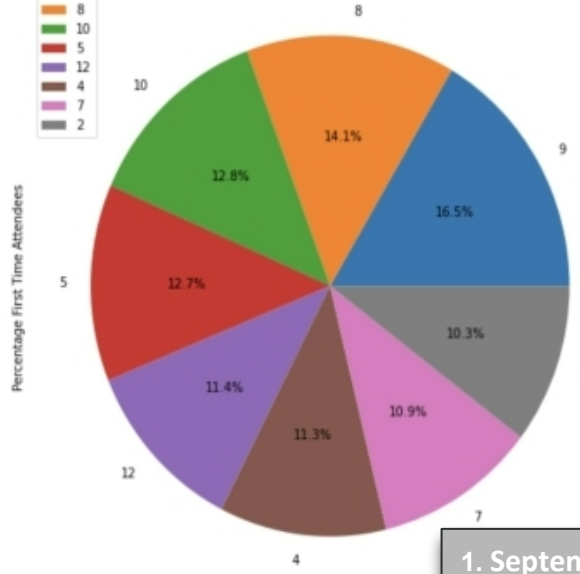
Findings- First Time Attendees

LOCATION CODE



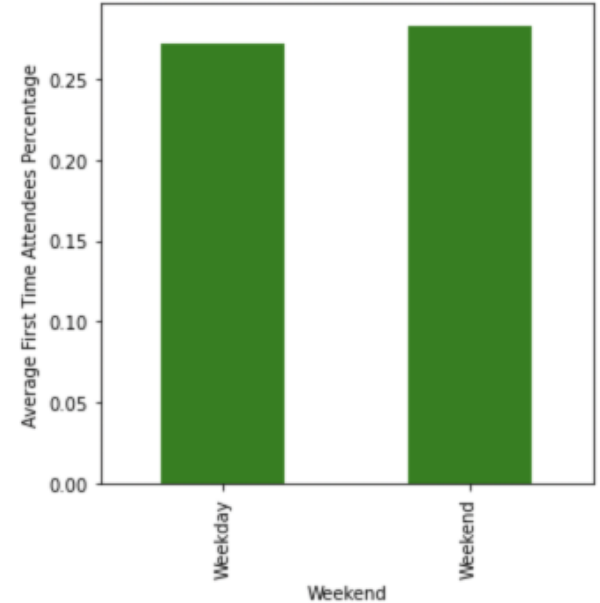
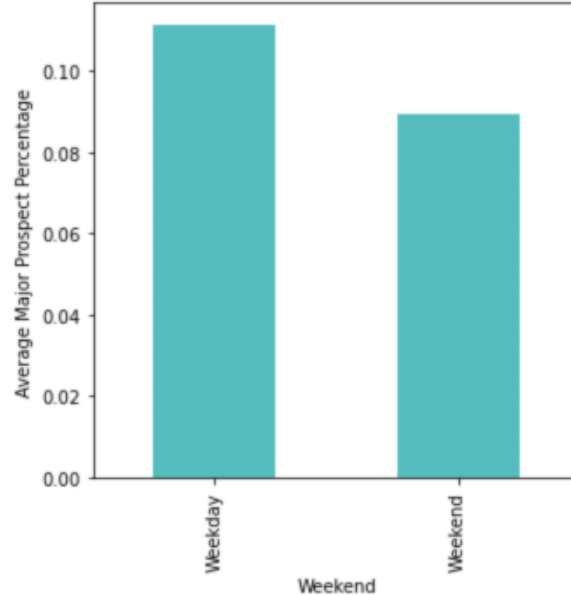
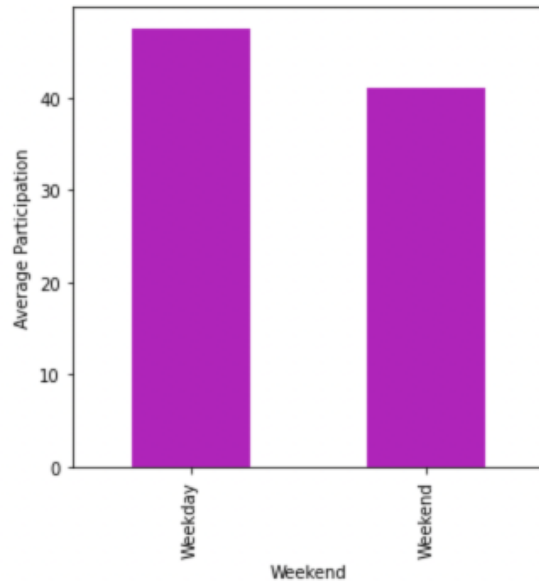
1. CP International- South Korea
2. CP Online-Brazen
3. CP International- UK

MONTH



1. September
2. August
3. October

Findings



Events held on weekdays tend to be more popular among target groups

Findings

Percentage Major Prospect 0.102214
Percentage First Time Attendees 0.276282
Participated 44.803859
dtype: float64

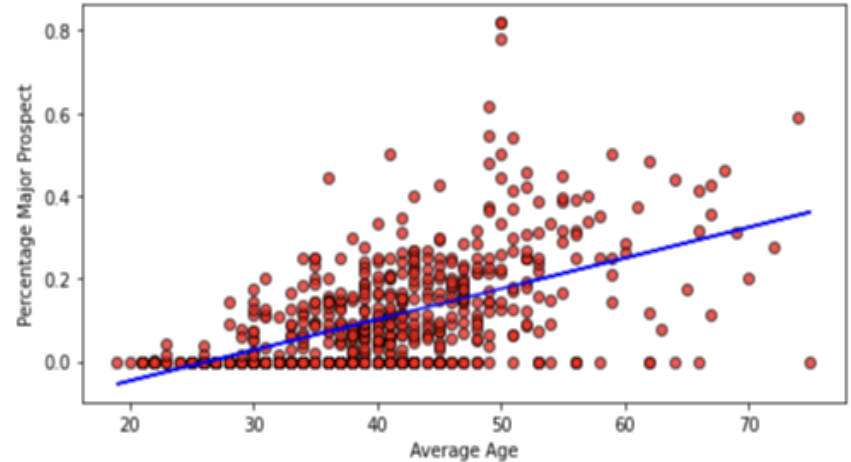
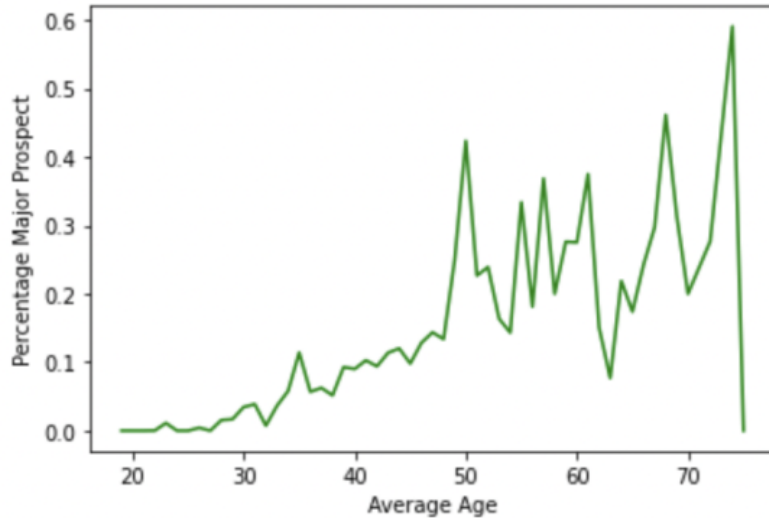
Group Description 1
CP General 0.276190
CP Stewardship 0.250000
CP Stewardship 0.234867
CP Membership 0.230446

Percentage First Time Attendees
Group Description 1
CP General 0.761905
CP D&I 0.428571
CP Social 0.296177
CP Service 0.293486

Participated
Group Description 1
CP Stewardship 117.700000
CP Membership 115.750000
CP Campaign 75.666667
CP Advocacy 75.500000

- ☐ Separate the group:
CP Social Pacific ->
“CP Social” and “Pacific”
- ☐ Focus on the CP General,
CP Stewardship, and the
CP Membership.

Findings



People with higher average age tend to have higher percentage major prospect

Prediction of Major Prospects

Validation Data



Location Code: PDON
Group Code: PAZ
Activity Code: PEA0H
Corresponding Major Prospects Value in database: 6
Prediction of Major Prospects Value: 5.98

Prediction



Location Code: PNPH
Group Code: PS9
Activity Category: PEZ0C
Participants: 100



Percentage Major Prospects: 14.33%

Prediction of First Time Attendees

Validation Data

Location Code: PDDC
Group Code: PS9
Activity Code: PEATB
Corresponding First Time Attendees Value in database: 10
Prediction of First Time Attendees Value: 9.84

Prediction

Location Code: POWE
Group Code: PC9
Activity Category: PEAP4
Participants: 150

Percentage First Time Attendees: 39.56%

Recommendations

Time-wise

- Hold events more on Weekdays than weekends
- Hold events more on Summer to achieve more participation and major prospects.
- Hold events more during August to October, which is the beginning of Fall semester to attract more first-time attendees

Location-wise

- Hold social events more on campus since participation is higher

Recommendations

Activity-wise

- Due to COVID-19, plan more appealing online events

Group-wise

- Focus on Stewardship and Membership for higher participation and higher donation

Future Improvement

- ✓ Add more data like “Event Duration” or “Alumni Salary or Profession” to do more analysis and gain insights.
- ✓ Implement other regression techniques and find attributes that are highly correlated with first time attendees and major prospects in order to increase prediction accuracy of the model.
- ✓ Apply in-depth statistical analysis to better understand the correlation between the attributes.

Q&A

Questions and Answers



THANK YOU !



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