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Client Access Feature Engineering for the Homeless Community of the City of Portland

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Client Access Feature Engineering for the Homeless Community: Portland

By: Oswaldo Ceballos



CENTRAL CITY
CONCERN

HOMES HEALTH JOBS

About/Background

Organization: Central City Concern (CCC)

Services include:

- Housing
- Recovery
- Health Care
- Jobs



Rundown

Goal: Feature Engineering and Exploratory Analysis on existing CCC client data

Existing Methods of Approach: Methodology is not uncommon; outcomes vary

Motivation: Serve the homeless community in Portland



Methodology (Data Science approach)

1. Become Familiar with CCC client data
2. Merge CSV's effectively
3. Feature Extraction/Encoding: Line of Business, Program Name
4. Explore Client Characteristics and Engagement Patterns

(If time permitted): Unique client table & Decision Tree Analysis



Becoming Familiar with CCC Client Data


- Daily Meetings
- Entry and feature recognition



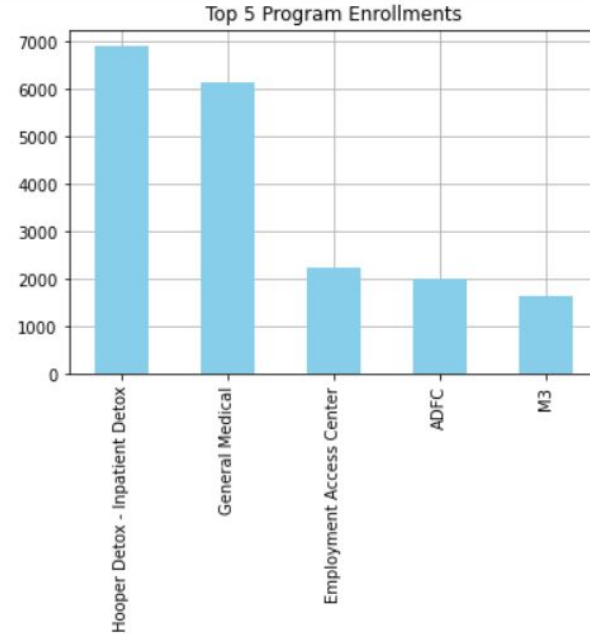
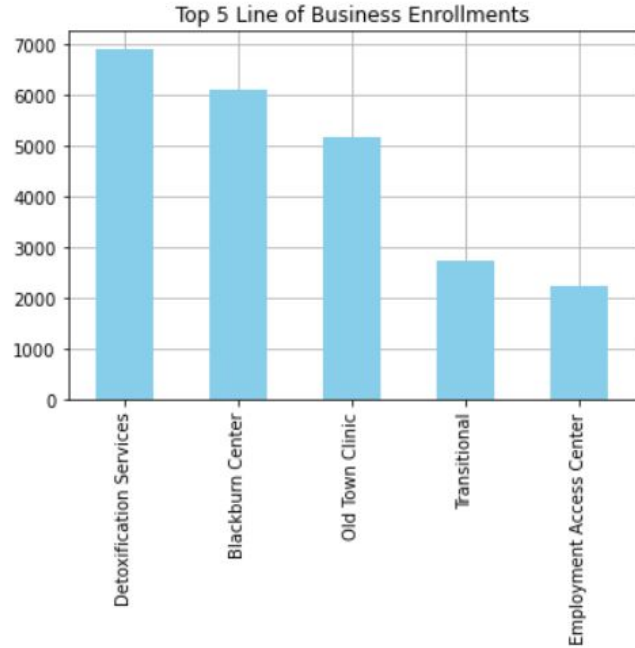
Exploring Client Engagement Patterns

- Focus on top client enrollments

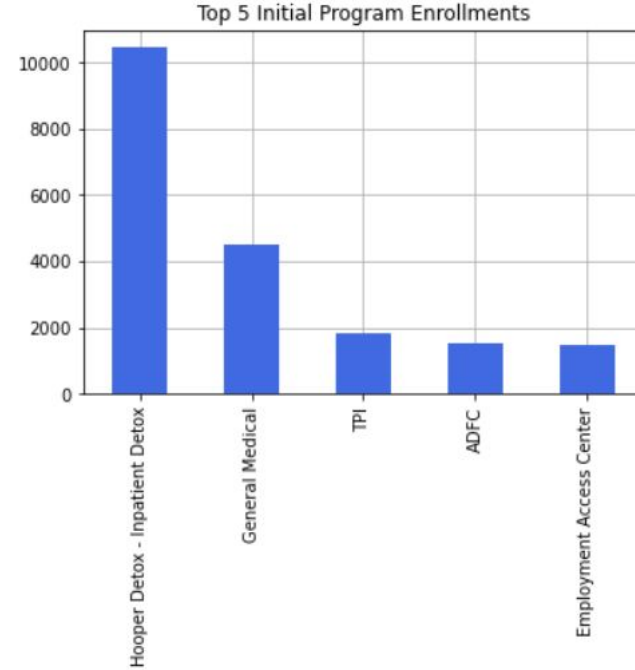
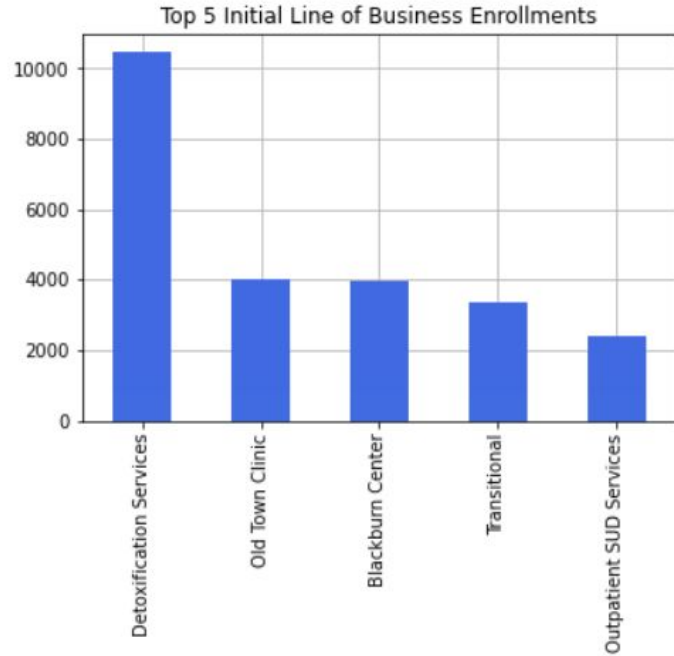
Questions of Interest:

- Which programs have the most enrollments?
 - Which lines of business have the most enrollments?
 - Which T0 programs results in the most enrollments?
 - What happens when you slice any of the questions above by demographics?
- 

Exploring Client Engagement Patterns: Top Enrollments



Exploring Client Engagement Patterns: Top Initial Enrollments



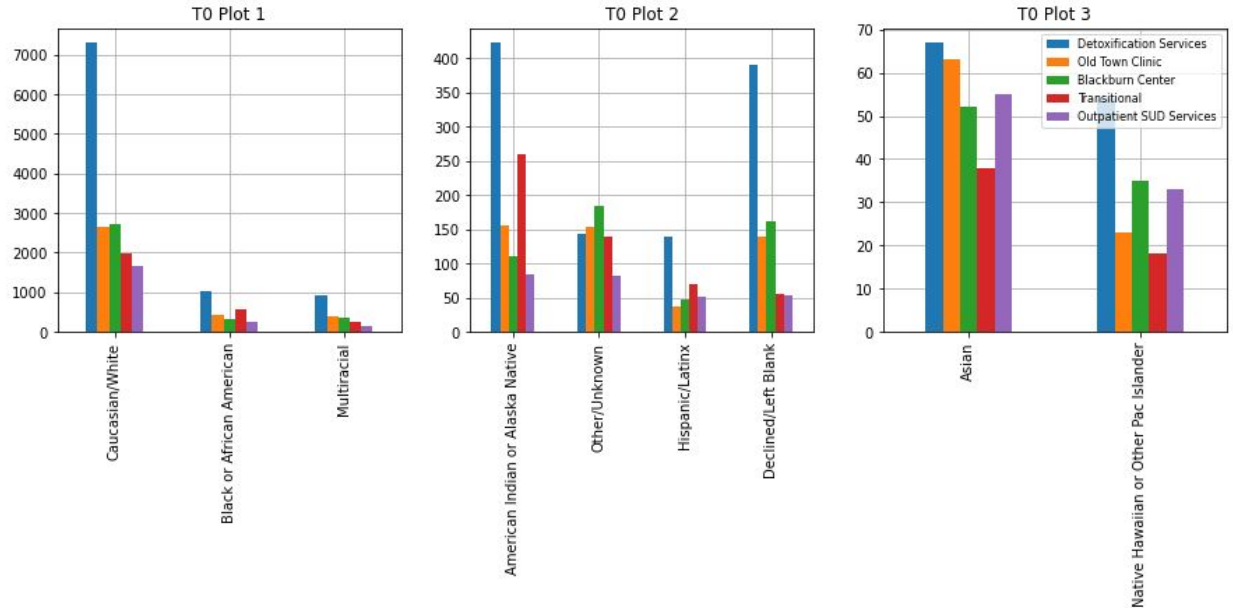
Exploring Client Engagement Patterns: Top Initial Enrollments by Race

Plots of Top 5 t0_LineOfBusiness Names by: Primary Race

NOTE: Scaling for each plot is different to compensate for relative comparison

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- T0 Line of Business



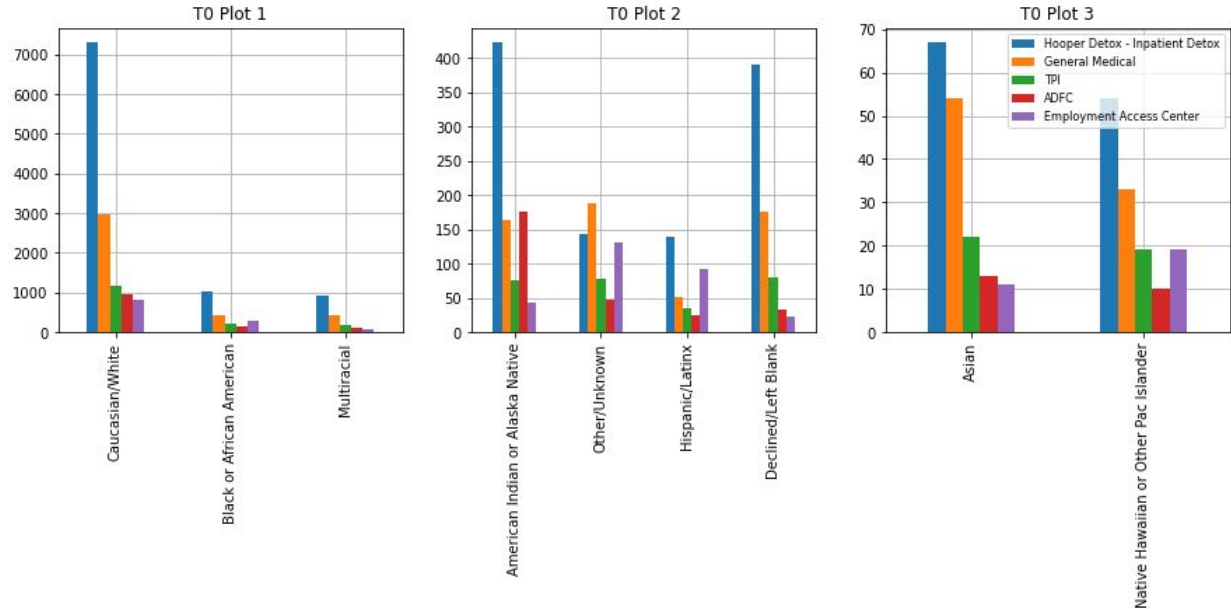
Exploring Client Engagement Patterns: Top Initial Enrollments by Race

- T0 Programs

Plots of Top 5 t0_Program Names by: Primary Race

NOTE: Scaling for each plot is different to compensate for relative comparison

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Exploring Client Engagement Patterns: Top Initial Enrollments by Age

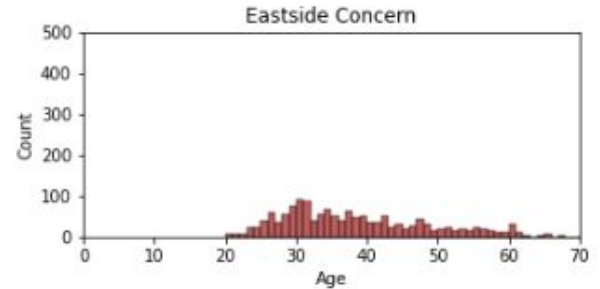
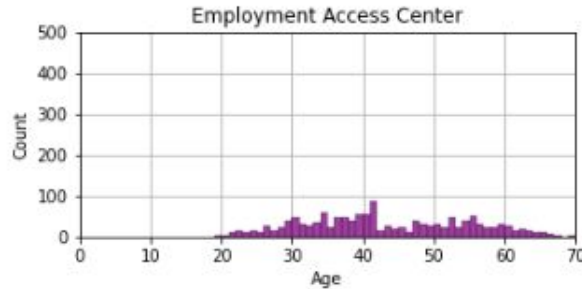
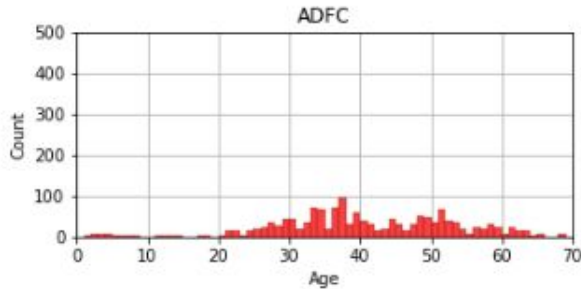
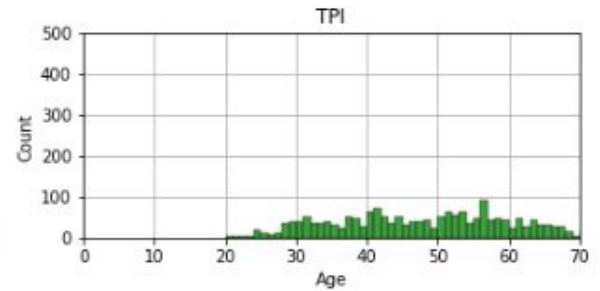
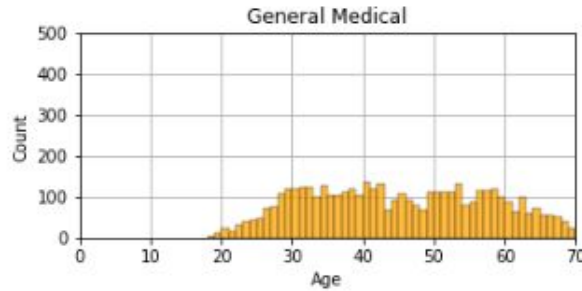
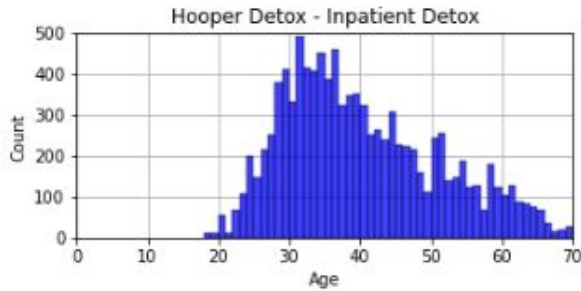
Histogram plots for AGE by: Top 6 first index (t0) lines of businesses

NOTE: Scaling differs by subplot depending on relative counts of subplots



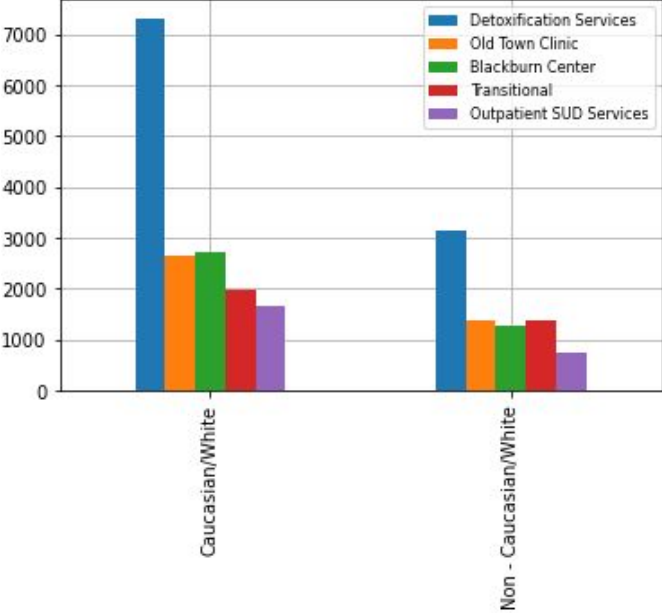
Exploring Client Engagement Patterns: Top Initial Enrollments by Age

Histogram plots for AGE by: Top 6 first index (t0) program names enrollments
NOTE: Scaling differs by subplot depending on relative counts of subplots

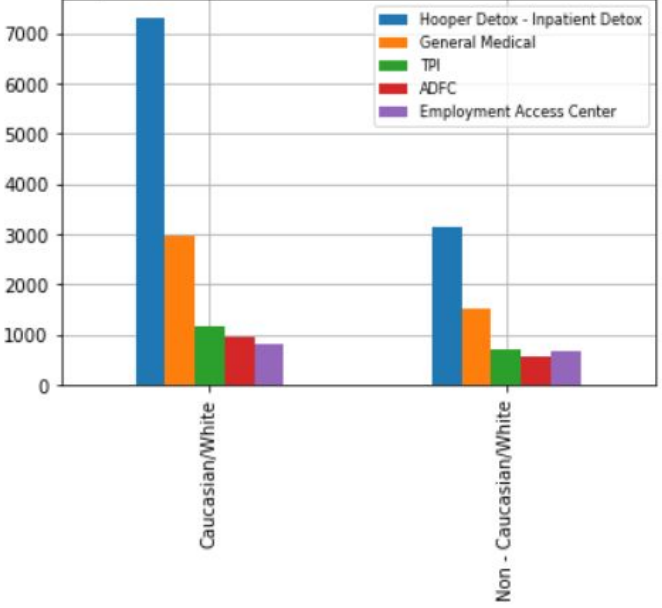


Noticeable Takeaways

Top 5 T0 Line of Business enrollments: White and non-White



Top 5 T0 Program enrollments: White and non-White



Conclusion/Takeaways

- Newly Merged datasets
- Top enrollment patterns
- Distribution recognition

Future Next Steps (if time permitted)?



Acknowledgements

- AltREU PSU
- Central City Concern (CCC)

