CSP - 586

Software Modeling and Development with UML

FINAL PROJECT BLUEPRINT

EDUCATION

Team – 20

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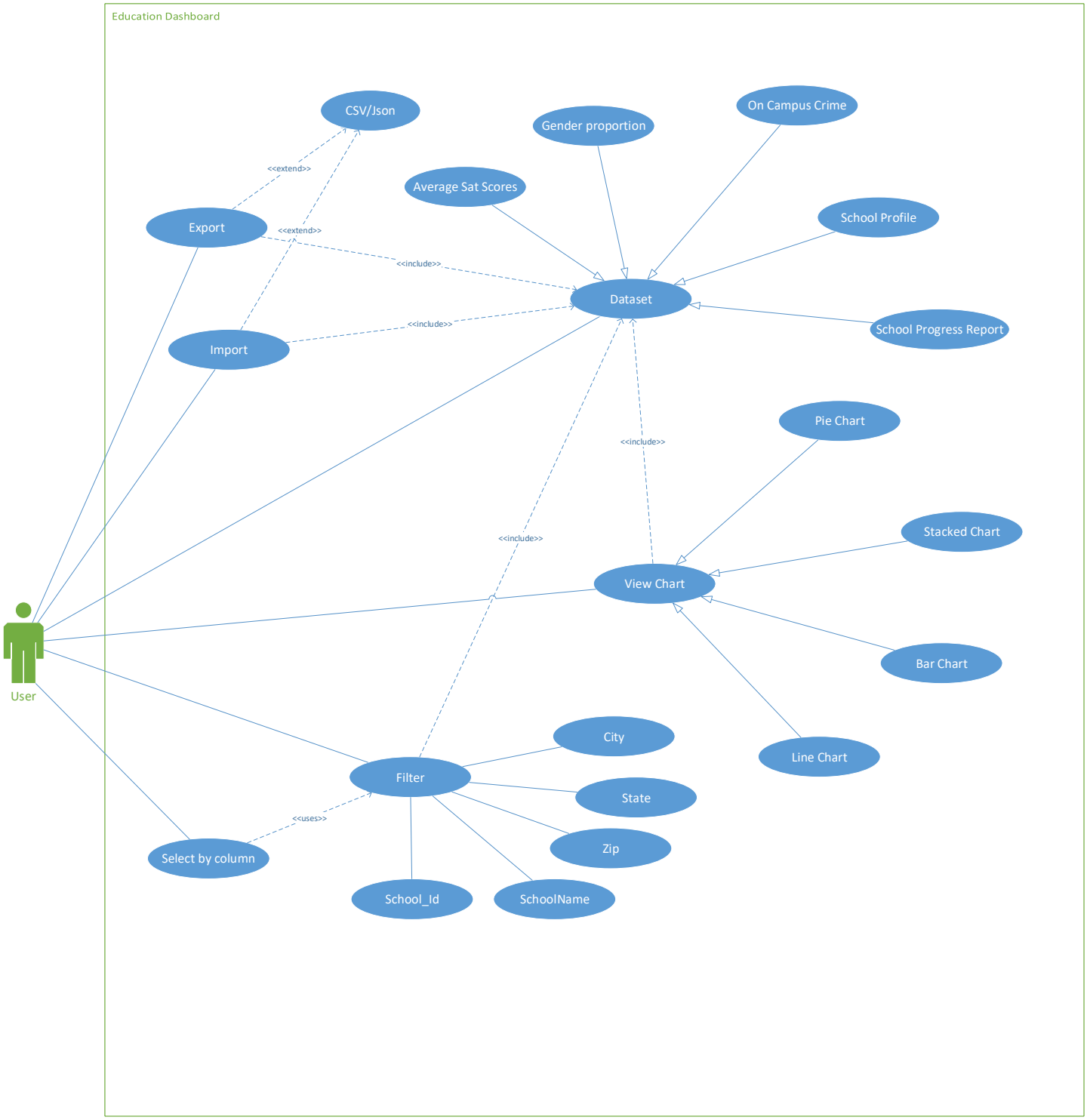
Project Overview

- It is a painful task for a user to choose one of the better schools based on the profile, crime rates, school progress, demographics etc.
- In our project we display a chart for a user with the different data sets so that he can choose a better school in 5 different states in United States.
- Our data sets consists of:
    - Demographics which talks about gender, ethnicity (white, black, Asian, hispanic).
    - SAT scores – consists of acceptance based on reading and math score, graduate rate etc.
    - School Profile Info: consists of low income students, school rating, students different commute methods, school hours.
    - Crime rate: consists of men and women arrested, people using weapons, drugs, liquor, suspensions of students etc.
    - School progress report: consists of different surveys, growth of students based on math, reading, attendance etc.

Requirements/Features List:

1. User will be able to read 5 datasets to be read from a data file in CSV or JSON format.
   The data will be shown from 5 different states like California, Illinois, New York, Texas & Washington having following 5 different datasets.
    - School Profile
    - Demographics Information.
    - Sat score
    - Campus Arrests
    - School Progress Report
2. The User must be able to plot the data on the Dashboard in one of the following chart types: Line, Bar, Pie, Stacked, Pivot
3. User will be able to plot graph for the different college enrollment rate.
4. User will be able to plot graph for the various transportation means like bus and amtrack.
5. User will be able to plot graph for the overall college rating.
6. User will be able to plot graph to get the count of English learners.
7. User will be able to plot graph for the average SAT scores of different sections like Math, writing
8. User will be able to plot graph for the count of number of SAT Test Takers.
9. User will be able to plot graph for the different college graduation rate.
10. User will be able to count number of students from different ethnicities like Asian, Native American, Hispanic, White, Black.
11. User will also be able to plot graph of count of total men, total women and overall total.
12. User will be able to check on campus crime and get count of people arrested using weapons, drugs, liquor.
13. User will be able to get number of men and female arrested and get number of people suspended to misconducts.
14. User will be able to plot graph against various surveys like ambitious institutions, effective leaders, collaborative teachers, safety, parent-teacher partnership, qualities of facilities.
15. User will be able to get graphs for stats such as student attendance, teacher attendance.

Use Case Diagram



Use Case Description

Scope: The user wants charts to be displayed

Trigger Event: The User selects datasets and charts

Level: The user wants the selected charts to be seen

Primary Actor: User

Stakeholders and Interests: System: The system validates and verifies and approves the selections made by the user. The system validates the user. It helps user import and export datasets to and from the user. It helps users select the type of charts and it is the one doing the operations in the background of displaying charts and sending the results back to the user to view.

Preconditions:

- ✓ The System should we aware of all the extreme out of bounds conditions and should handle those situations normally without errors
- ✓ This happens when the charts due to top end graphics sometimes cannot be rendered and the system should properly collect all the data from each dataset to get the charts and should be displayed.

Success Guarantee:

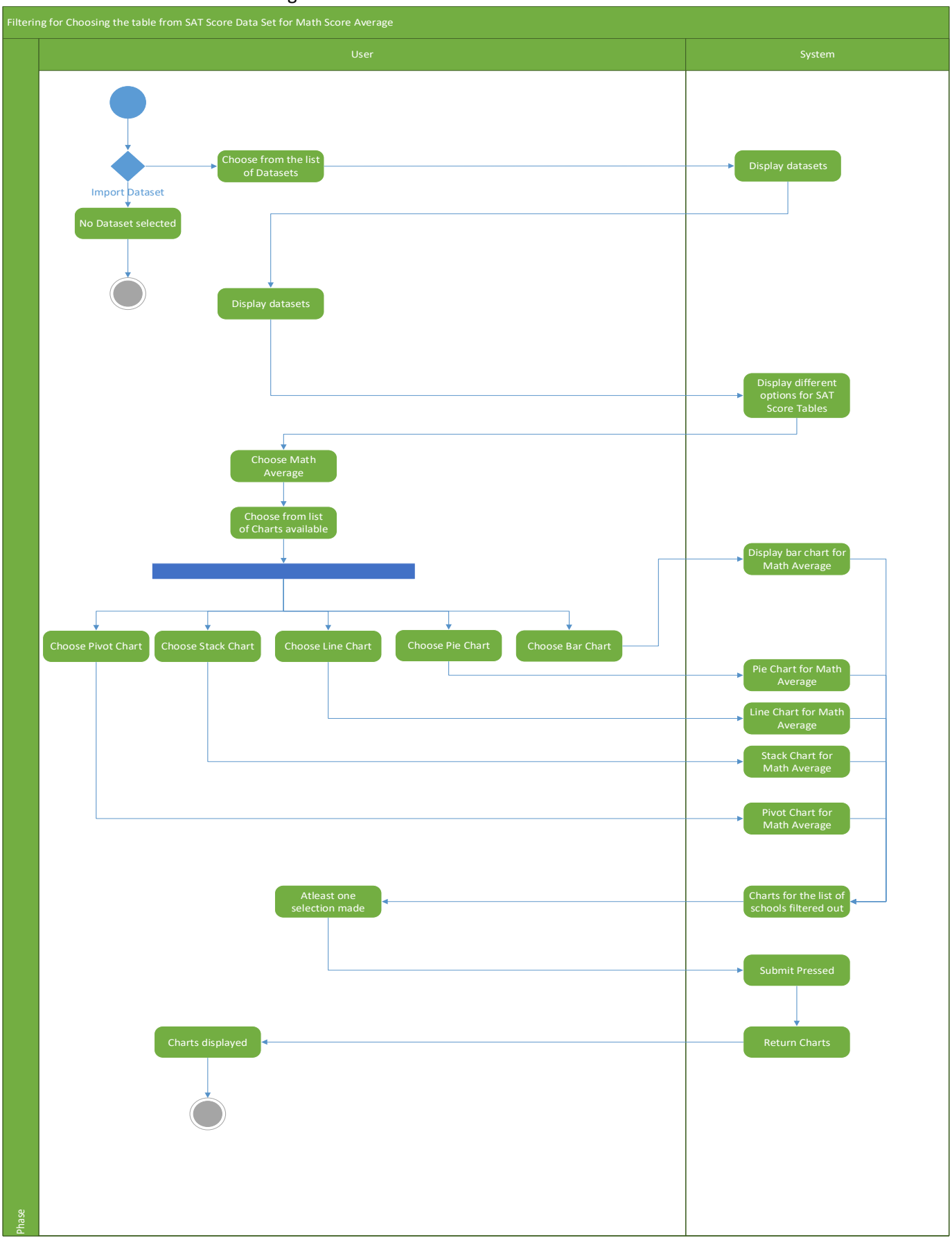
- ✓ There should be no errors while validating a user.
- ✓ When the user opts to import or export datasets. The datasets should be properly in place absolute paths are preferred over relative paths. This is the location from which the datasets are loaded and used for customer selection.
- ✓ When the user chooses the type of charts, each and every chart should be in a situation to work whatever be the input.
- ✓ The system should return valid results rather than null values.

Main Success Scenario or Basic Flow

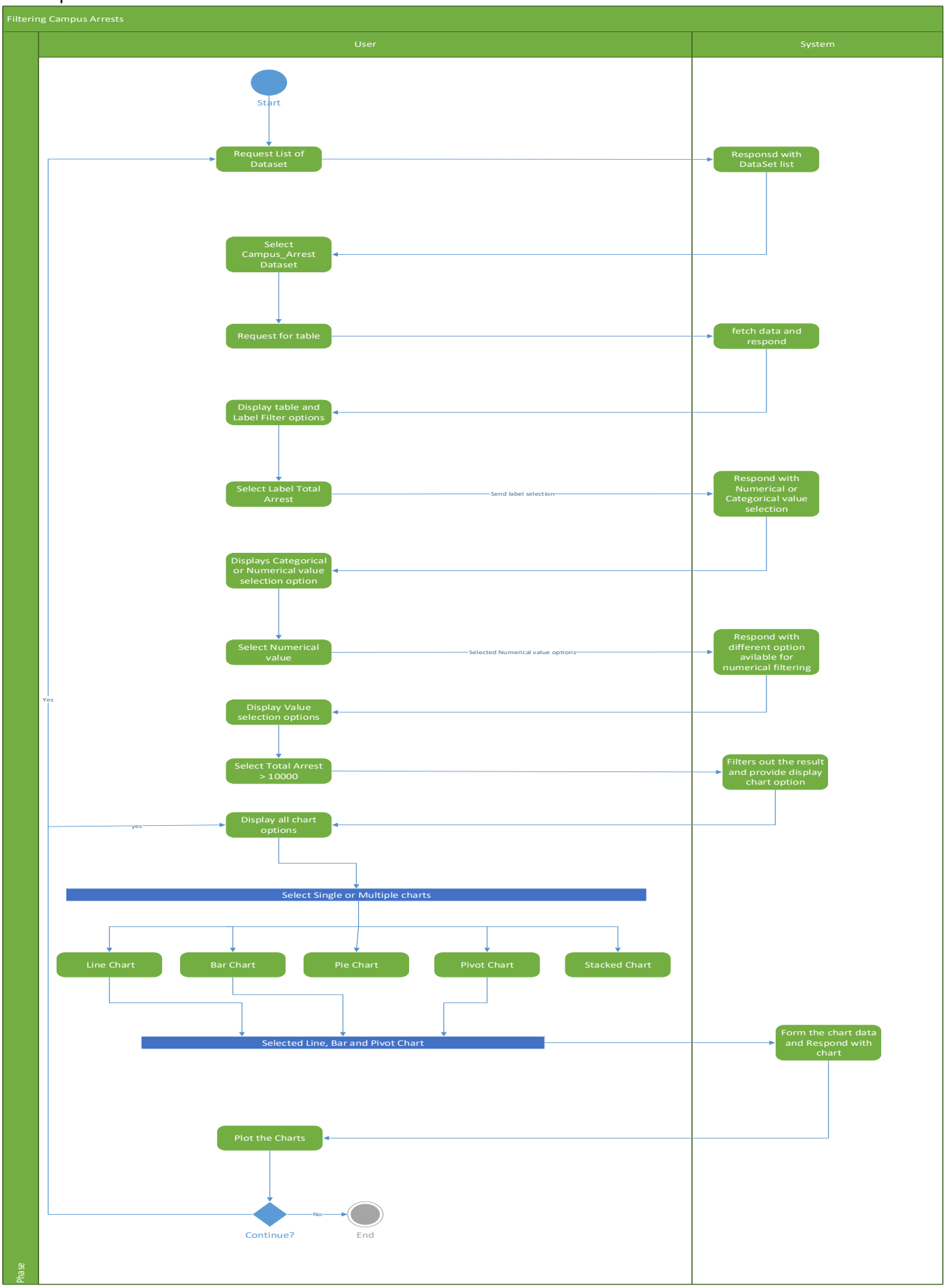
- ✓ User logs into the system. The system validates the user and logs in the user.
- ✓ The User then wants to import datasets. The user then makes the selection of importing any or all the 5 datasets.
- ✓ The system then handles this request smoothly without any unforeseen problems and returns the datasets for the user to further carry out his operations.
- ✓ Now the user chooses the datasets of his choice from the list returned from the previous step and the user also specifies the filtering criteria based on which he wants the data to be displayed as charts.
- ✓ The system then applies the filtering condition properly and returns the number of schools from all the 5 states.
- ✓ As soon as the user completes making the selection. The user should then be prompted to select from the list of charts available.
- ✓ The user makes his selection of the choice of charts. The system then takes the data of schools that was filtered out from the previous step and sends that data to the chart.js to plot the chart that user has requested.
- ✓ It then plots the chart for the user and send back the results to the user.

ACTIVITY DIAGRAM

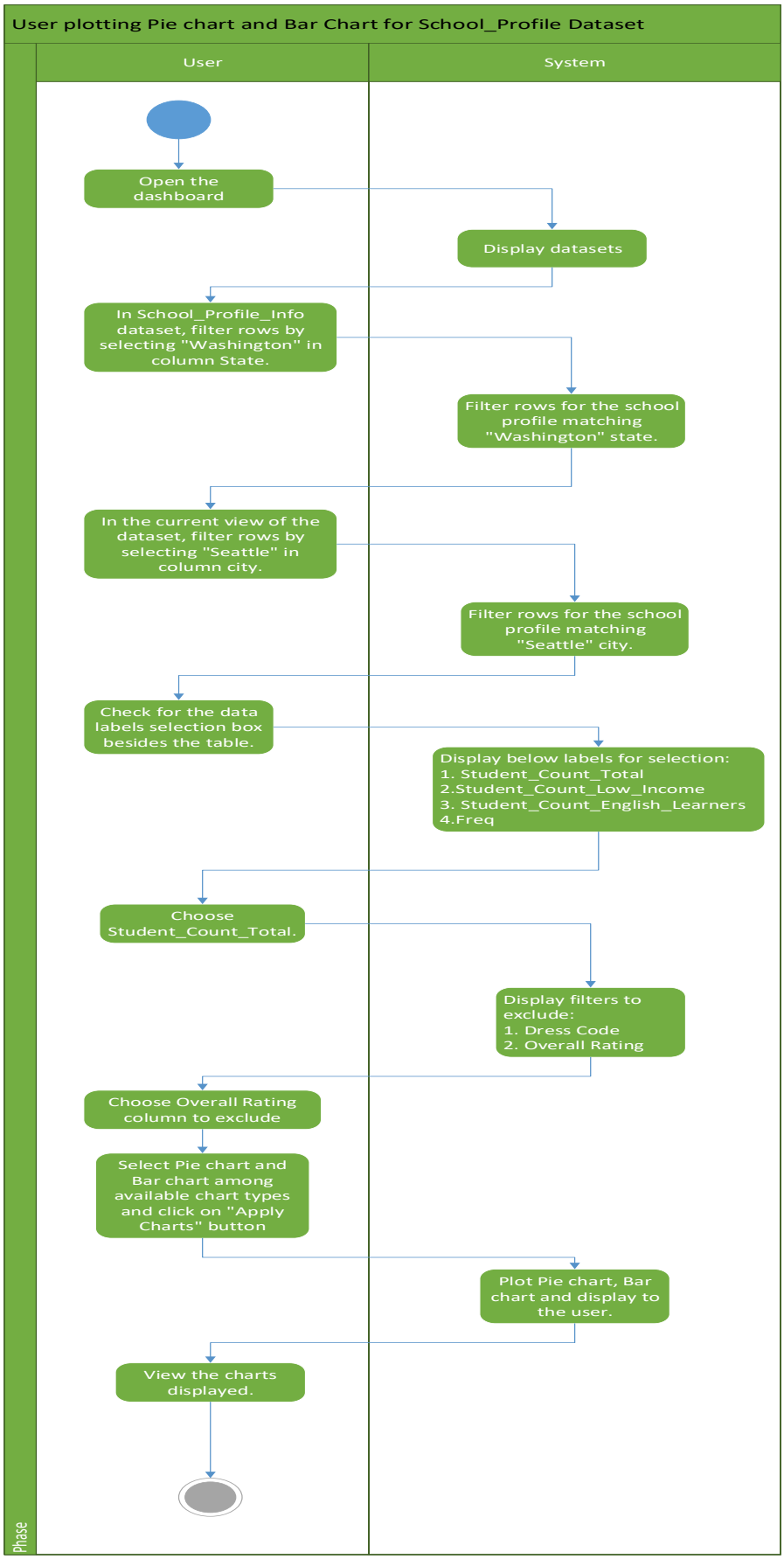
1: Select SAT Score for Math Average



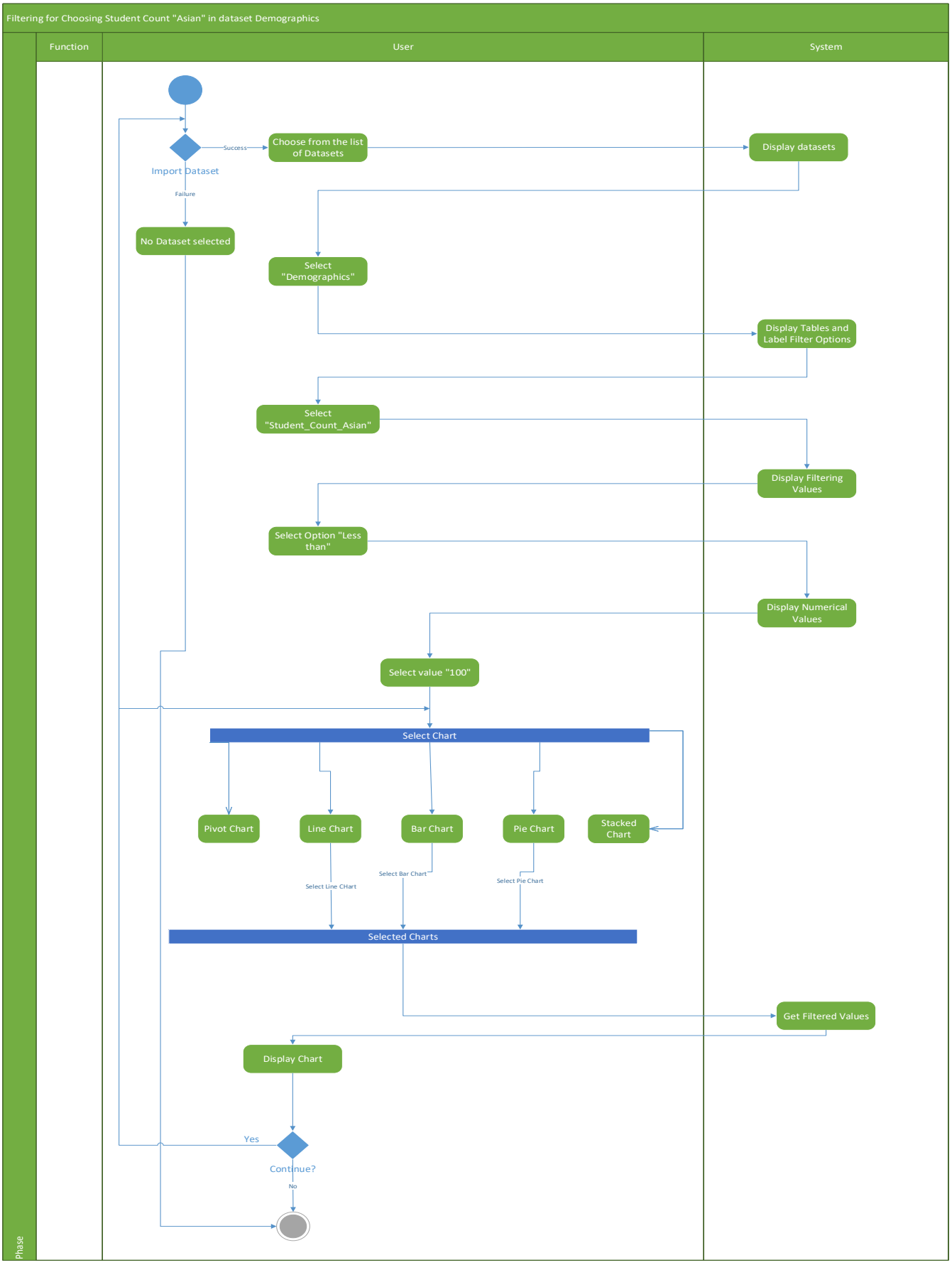
2: Campus Arrests



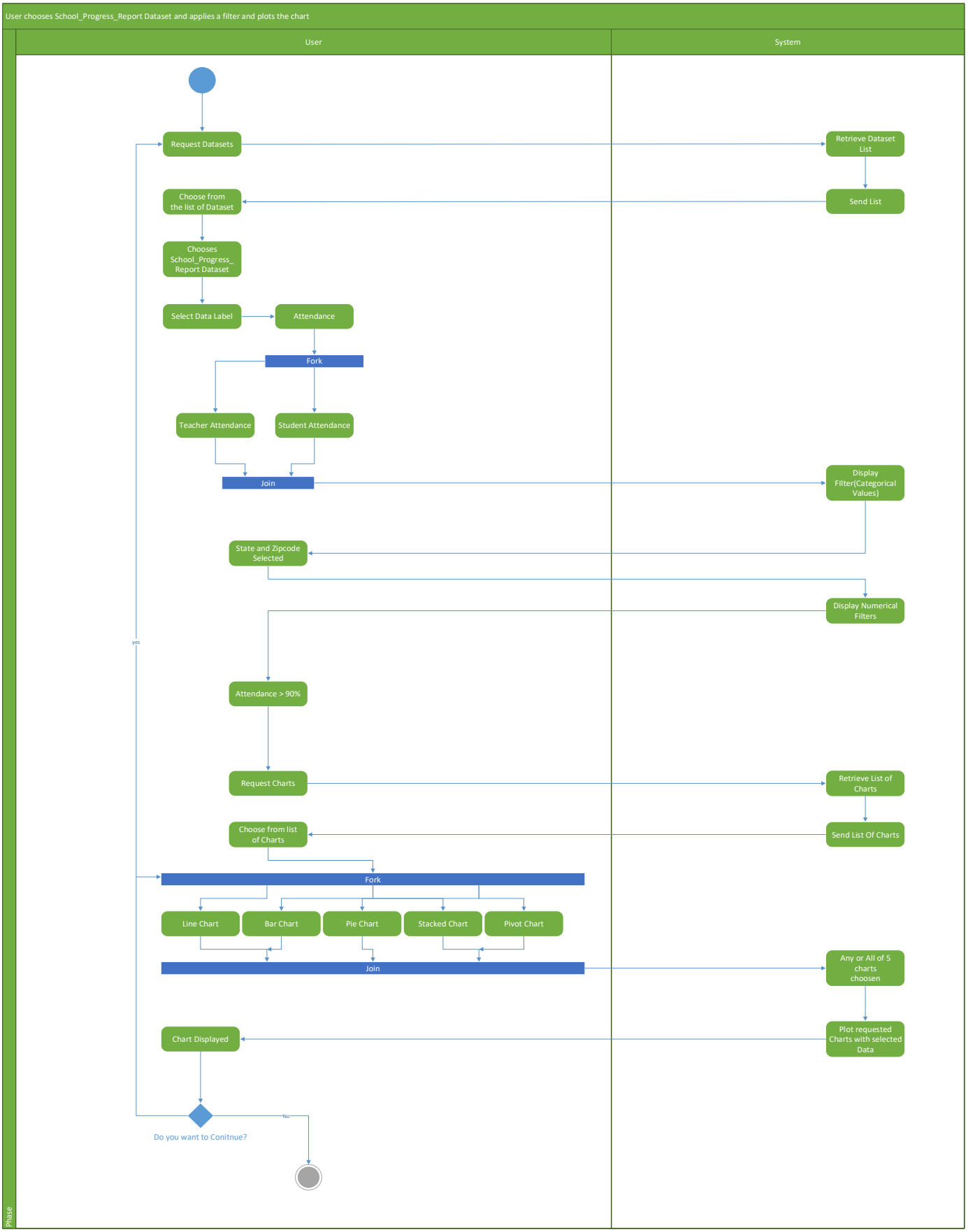
3: School Profile Data Set



4: Demographics

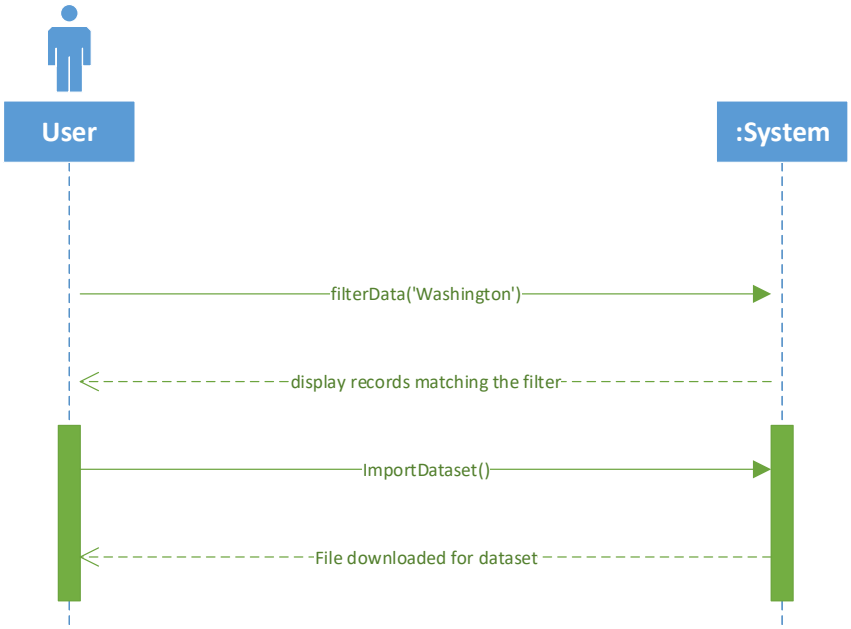


5: Progress Report



Sequence Diagram

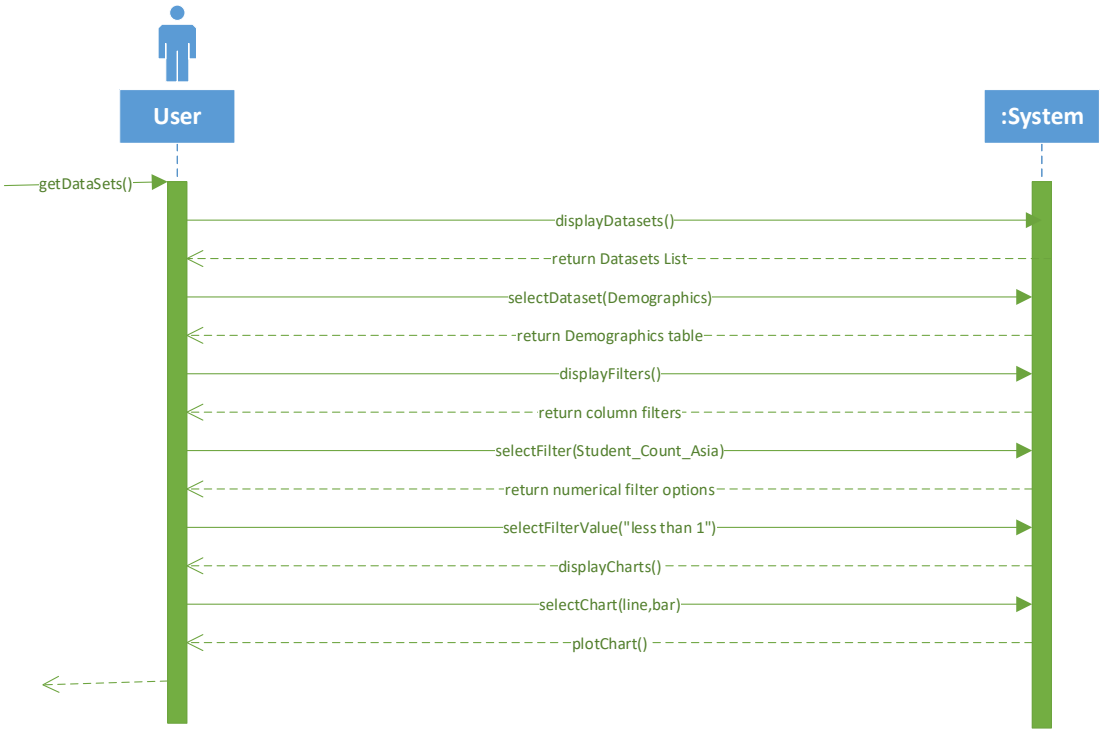
1: Import Data Set



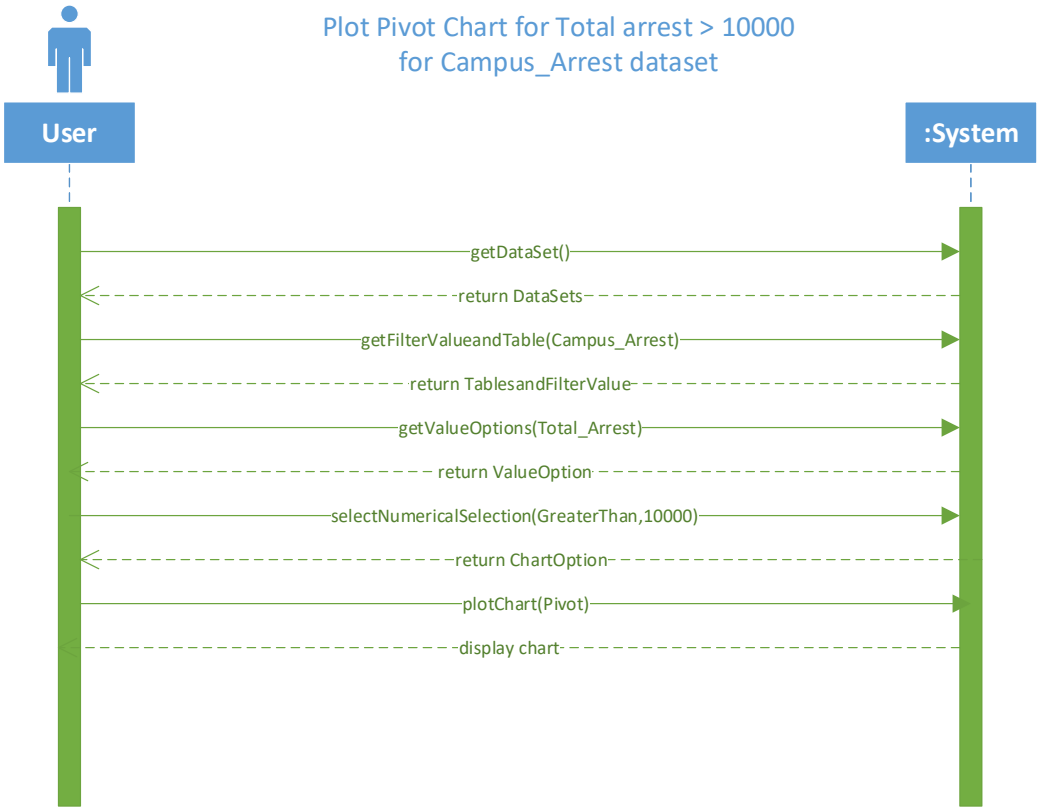
Import school profile data for schools in Washington state

2: Asian Student Count

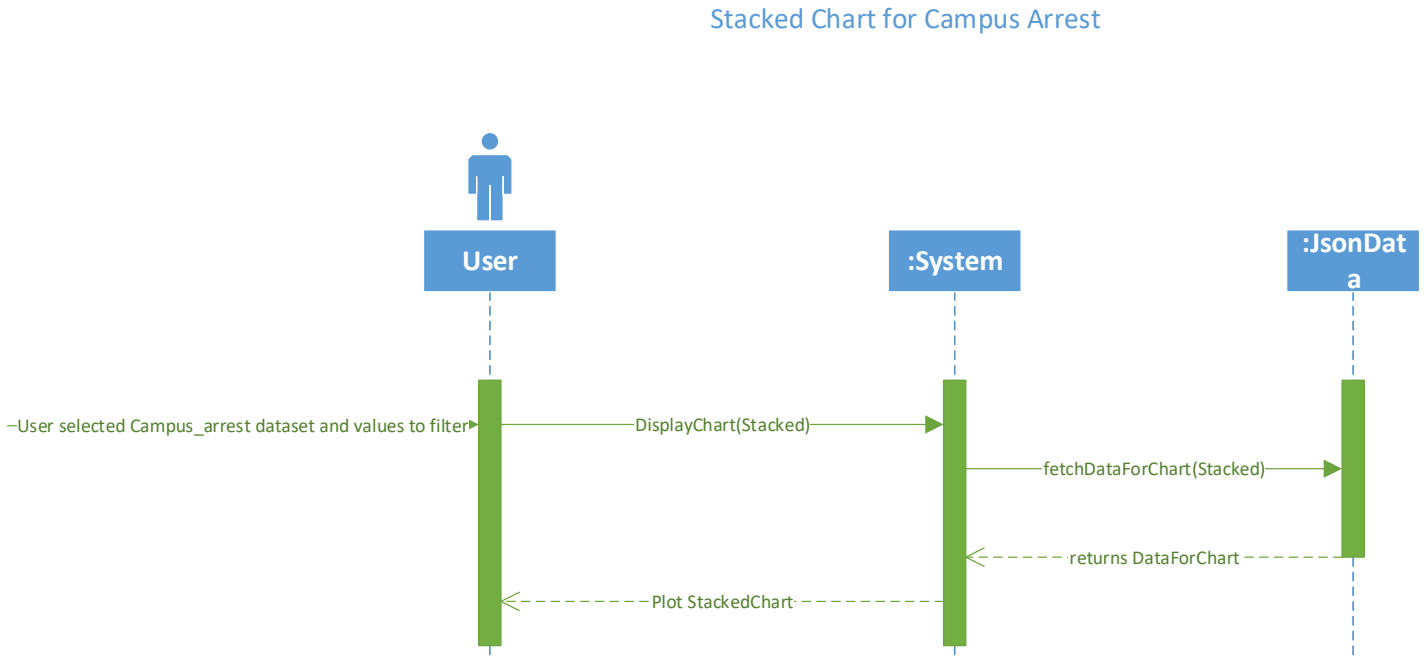
Sequence Diagram for plotting line and bar chart by selecting “Asian Student Count” from Demographics



3: Sequence Campus Arrest

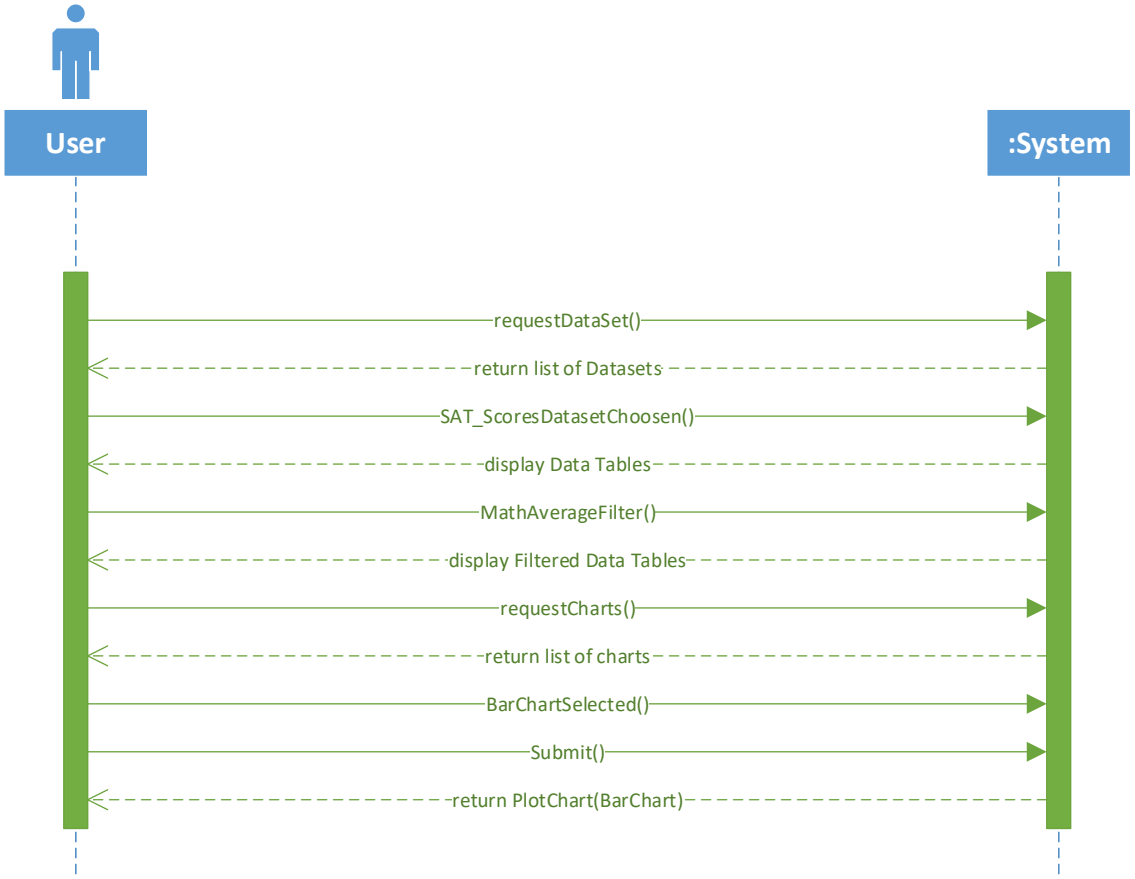


4: Stacked Chart for campus arrest

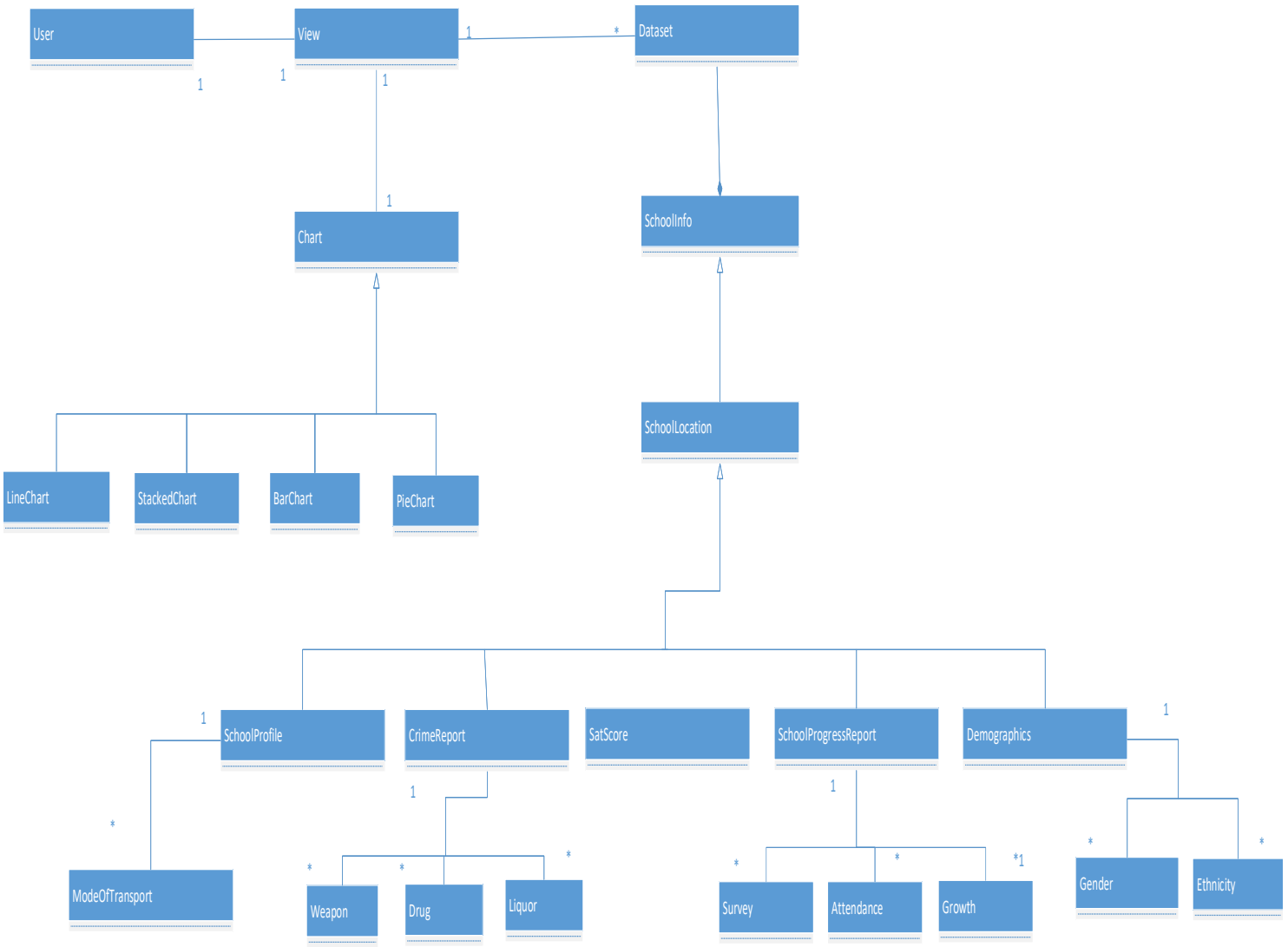
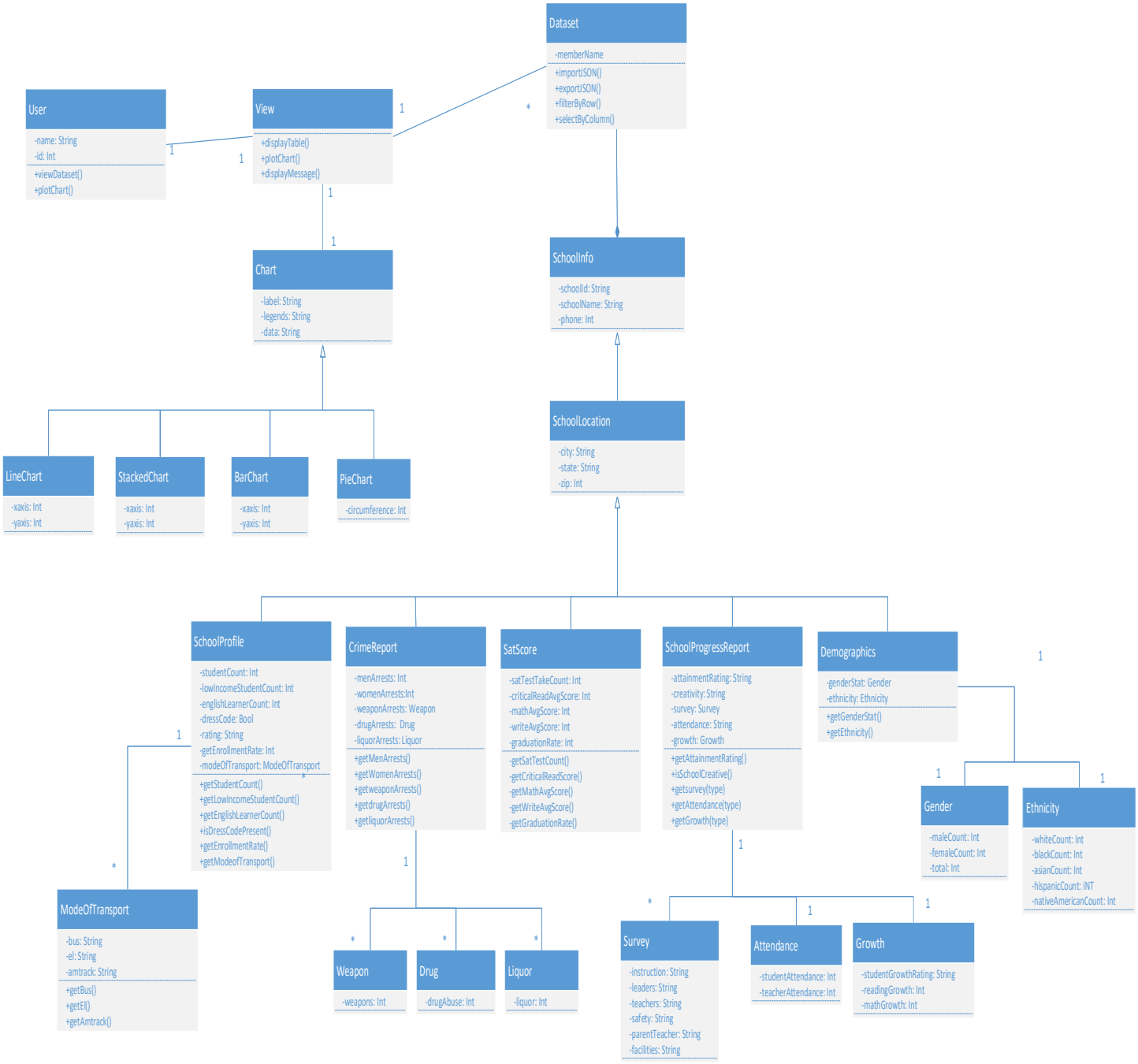


5: Sat Score

User chooses SAT_Score Dataset and chooses a Bar Chart to display Data



Domain Model Class Diagram



Design Model Class Diagram