**Pets Vets Analysis**

**Overview of Project:**

The project, as the name suggests, analyzes the relationship between the number of pets, vets, and demographic information within the various communities and quadrants of Calgary. By taking information such as the number of cats, number of dogs, number of pets, and number of vets in an area and comparing it to the population and average income of various communities, we can look for patterns in the data, see trends, and create relevant data for both business applications and for personal interest.

Some trends of interest is our income and pets\_per\_vet graph. It allows a potential business owner to identify communities that would have a large demand for a new veterinarian practice as well as money. Another interesting graph is our income vs pets graph that allows us to see that cat ownership decreases in richer communities while dog ownership increases.

**How it meets requirements:**

The program meets its first requirement near instantly upon executing; three CSV files are read using the np.genfromtext function, creating three separate arrays to work with. The next requirement, being able to receive two pieces of selection info and return information, is also met quickly upon program execution. The first prompt exists to choose which data to process – vets data or pets data. Afterwards, there are a plethora of options to choose from, graphing everything from city-wide trends to outputting information for individual communities. More details for the options can be seen in the flowchart below. The third requirement, data trends using numpy’s max, mean, or min functions is met using the area\_most\_least\_pets\_capita and area\_most\_least\_pets\_total functions, both of which use the max and min functions to provide the most and least pets and pets per capita, respectively. Finally, the required matplotlib graphs are produced using the graph\_time\_vs\_new\_registration, graph\_income\_vs\_pets\_by\_capita, and graph\_community\_vs\_income\_and\_pets\_per\_vet functions, respectively.

**Task management and timeline of milestones:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Goals Set Week of November 21 | Completed? | Goals Set Week of November 28 | Completed? | Goals Set  Week of December 5 | Completed? |
| Find useful data sets  Dylan | Nov. 22 | Complete  initial\_pet\_calculations  Ahmed | Dec. 2 | Ensure proper docstrings  Dylan and Ahmed | Dec. 6 |
| Format data sets  Ahmed | Nov. 24 | Complete  All vets\_menu options  Dylan | Dec. 2 | Formalize documentation  Dylan and Ahmed | Dec. 8 |
| Create a plan for our project  Dylan and Ahmed | Nov. 23 | Complete  All pets\_menu options  Dylan and Ahmed | Dec. 3 | Prepare for presentation  Dylan and Ahmed | Dec. 8 |
| Design all user menus  Dylan | Nov. 25 |  |  |  |  |

**Evidence of design process and planning:**

Our plan going in was to allow us both work to on the code simultaneously and independently. To allow for this, we divided the code into numerous functions to allow for easier development and testing as well as to prevent conflicts in variable naming. Our plan going in for the function flow within our program is shown below. We stuck very closely to this plan. It helpful to have a general plan like this as it allowed for flexibility.

A picture containing shape

Description automatically generated

To see evidence of the design process and development the GitHub repository used in development can be found here: <https://github.com/Aladfar/PetsVetsAnalysis-ENDG233FinalProject>

**Dataset:**

Our data sets were taken from a variety of sources. pets\_data.csv was taken from the City of Calgary. We made no major modifications. communities\_data.csv was taken from great-news.ca. We made no major modifications. vets\_data.csv had the list of vets taken from the Alberta Veterinary Medical Association. We then used google maps to identify the community and to determine if it was a 24 hours facility. All non cat and dog veterinarians were also removed.

*Licensed Pets*, Calgary Open Data, The City of Calgary, November 2021. [Online]. Available: <https://data.calgary.ca/Services-and-Amenities/Licensed-Pets/5dgy-88cq>

*Veterinary Practice Directory,* Alberta Veterinary Medical Association, November 2021. [Online]. Available: <https://www.abvma.ca/company/roster/companyRosterView.html>

*Google Maps,* Google, November 2021. [Online]. Available: <https://www.google.com/maps>

*Calgary Community Demographics*, Great News. [Online]. Available: <https://great-news.ca/demographics/>