ENV421: Community Research for Social and Environmental Change

Meal Care

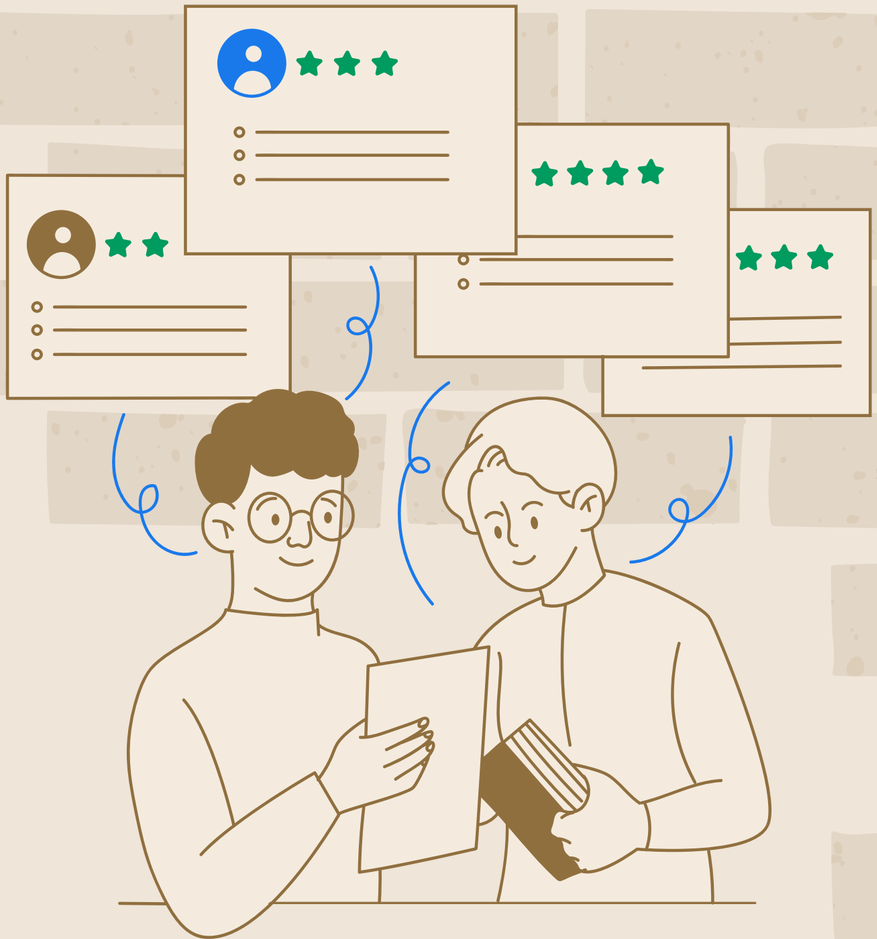
Final Presentation

Presentation by Acacia, Alice, Assouma, Danny, Jenny, Zhaopeng(Pierre)

Study Overview and Key Considerations

1. Who is MealCare?
2. Scope of Research
3. Methods

The Survey



104

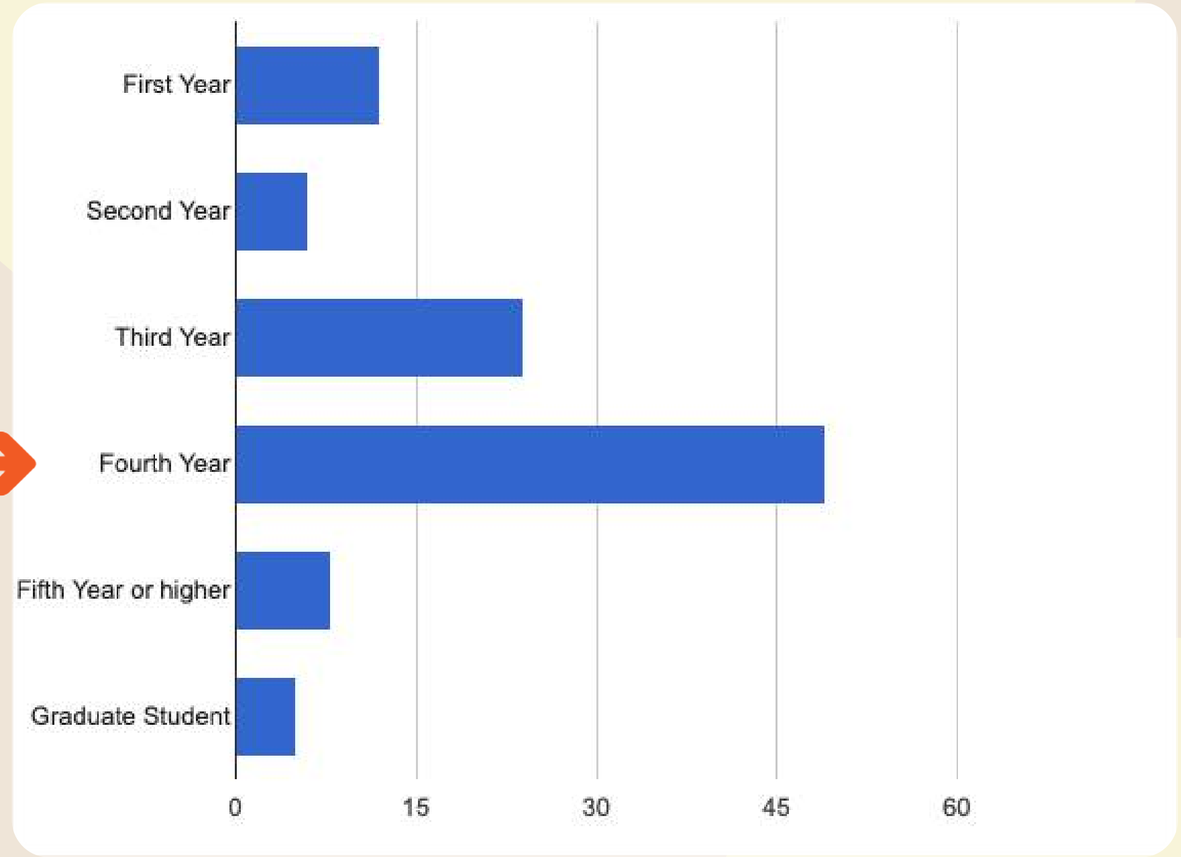
CALLING ALL UOFT STUDENTS:

FILL OUT A QUICK SURVEY ON COMMUNITY FRIDGES FOR A CHANCE TO WIN 1 OF 4 $25 GIFT CARDS

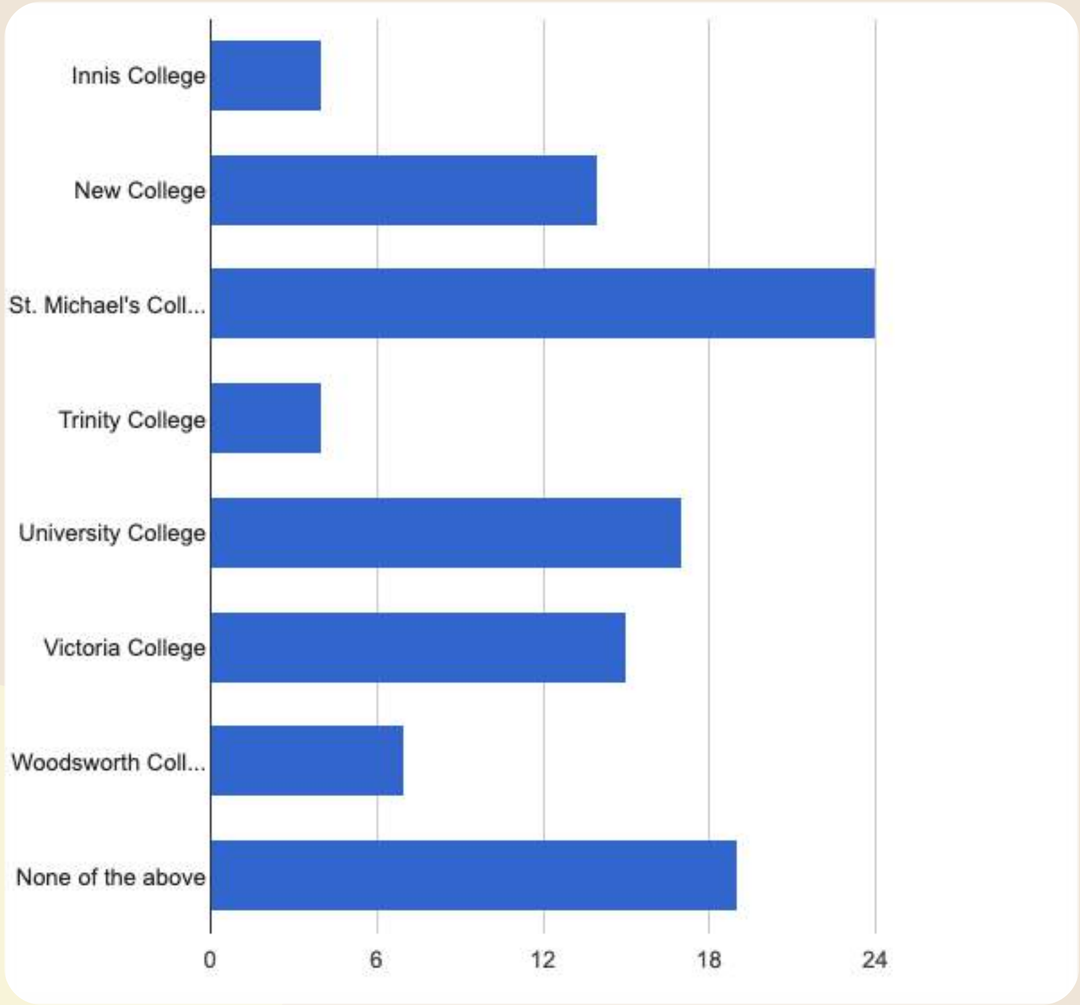
MUST BE A UOFT STUDENT TO PARTICIPATE

Background Information

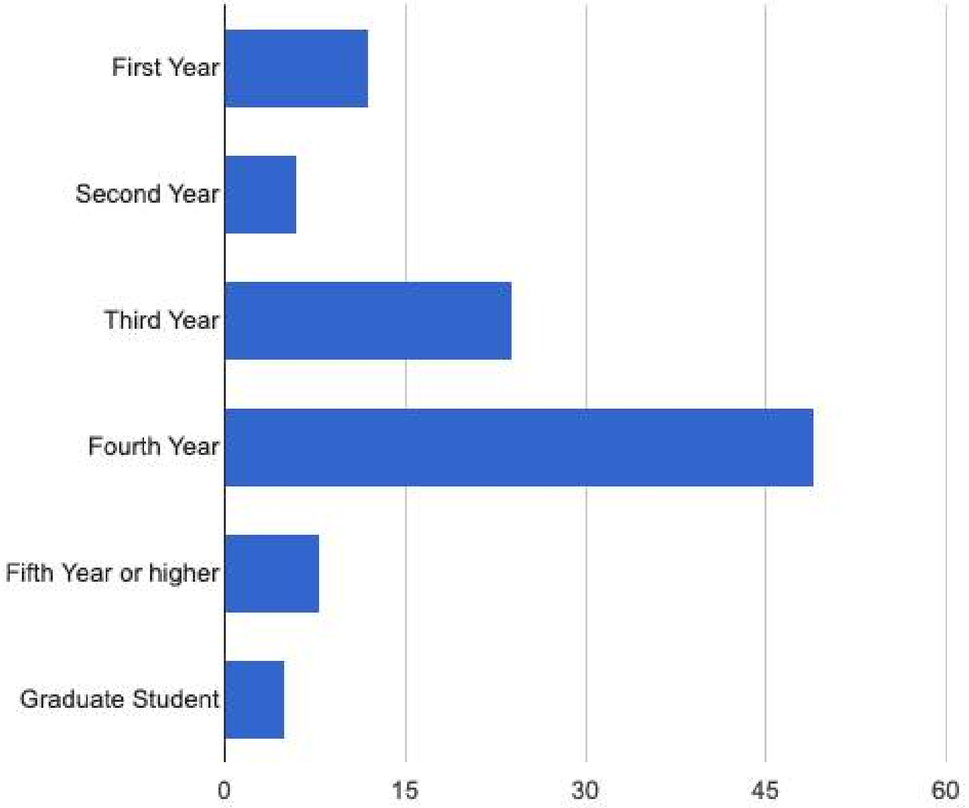
What year are you in your studies?



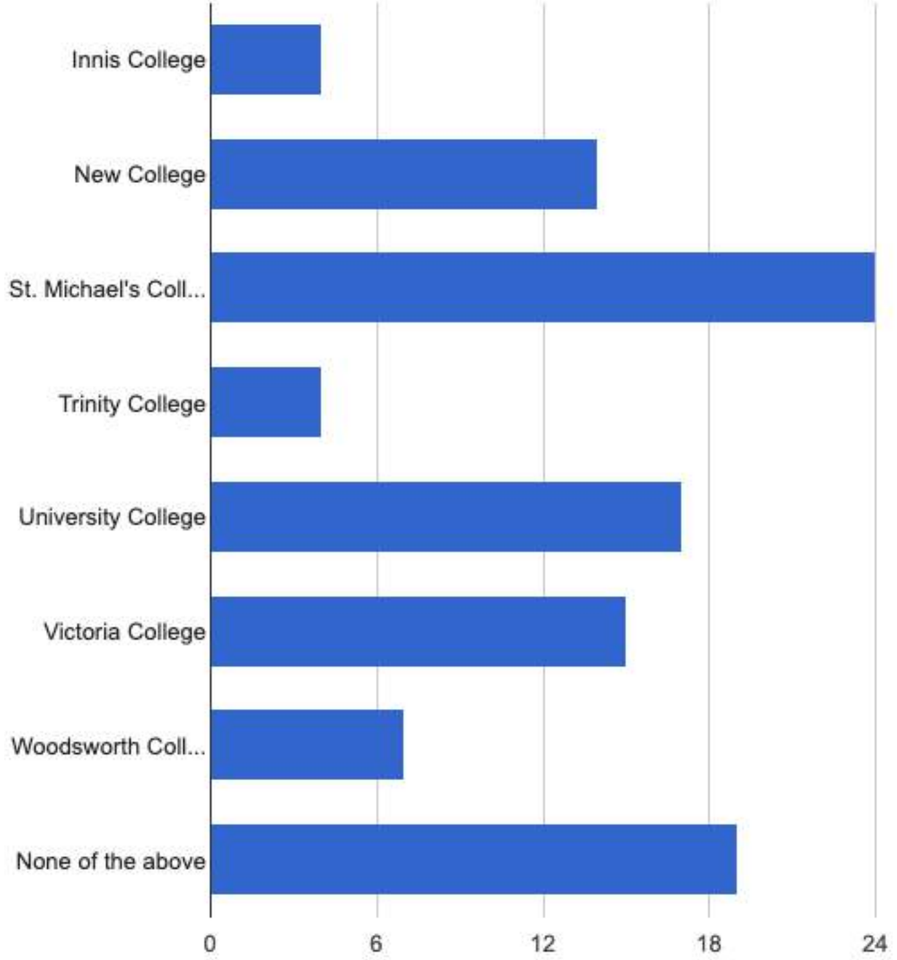
What college are you in at UofT?



What year are you in your studies?

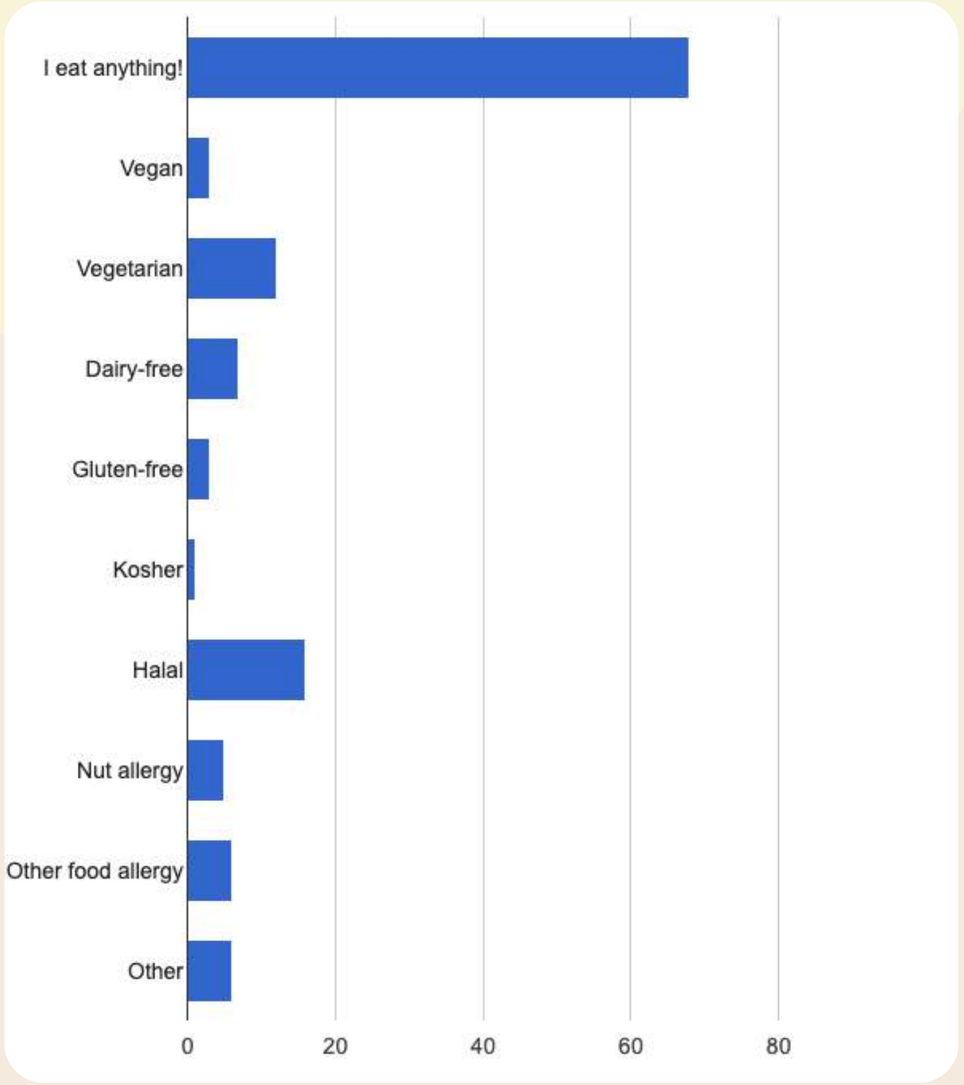


What college are you in at UofT?

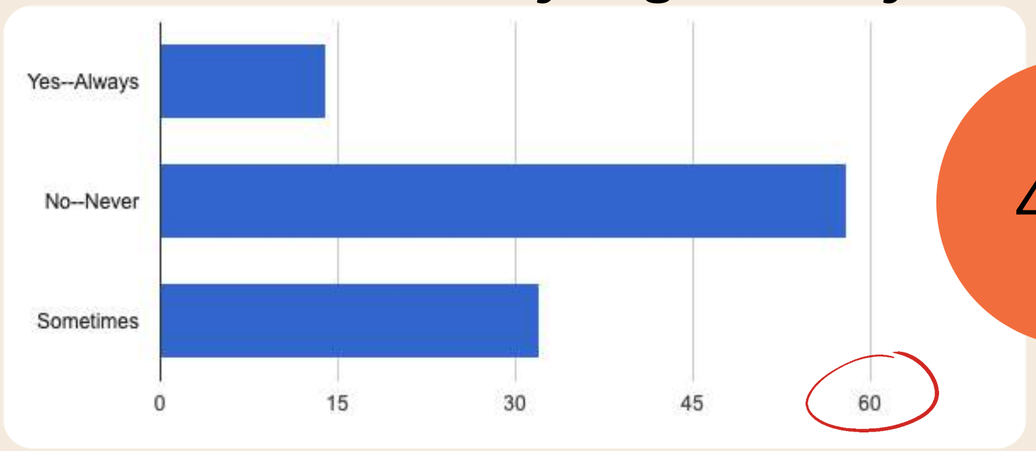


Food Insecurity Screening and Diet

What does your diet look like?

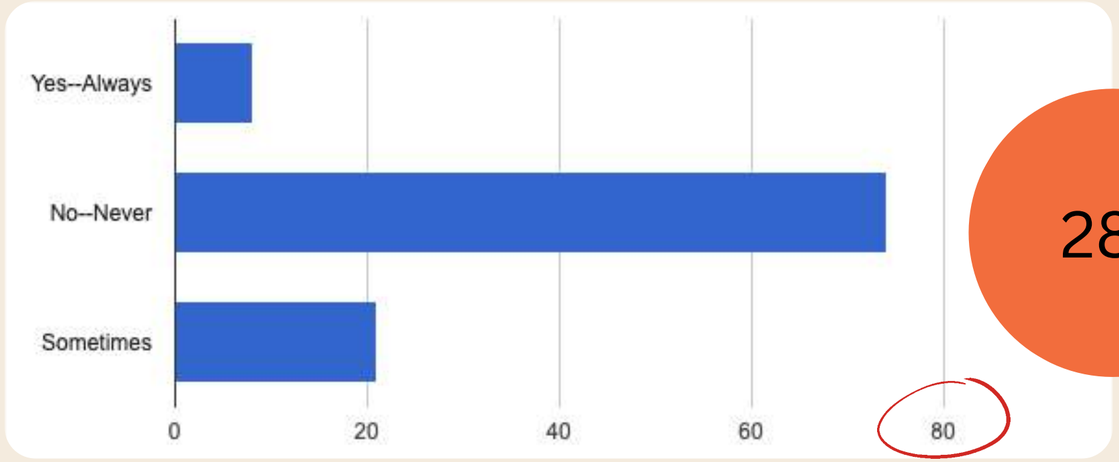


Within the past 12 months, have you worried that your food would run out before you got money to buy more?



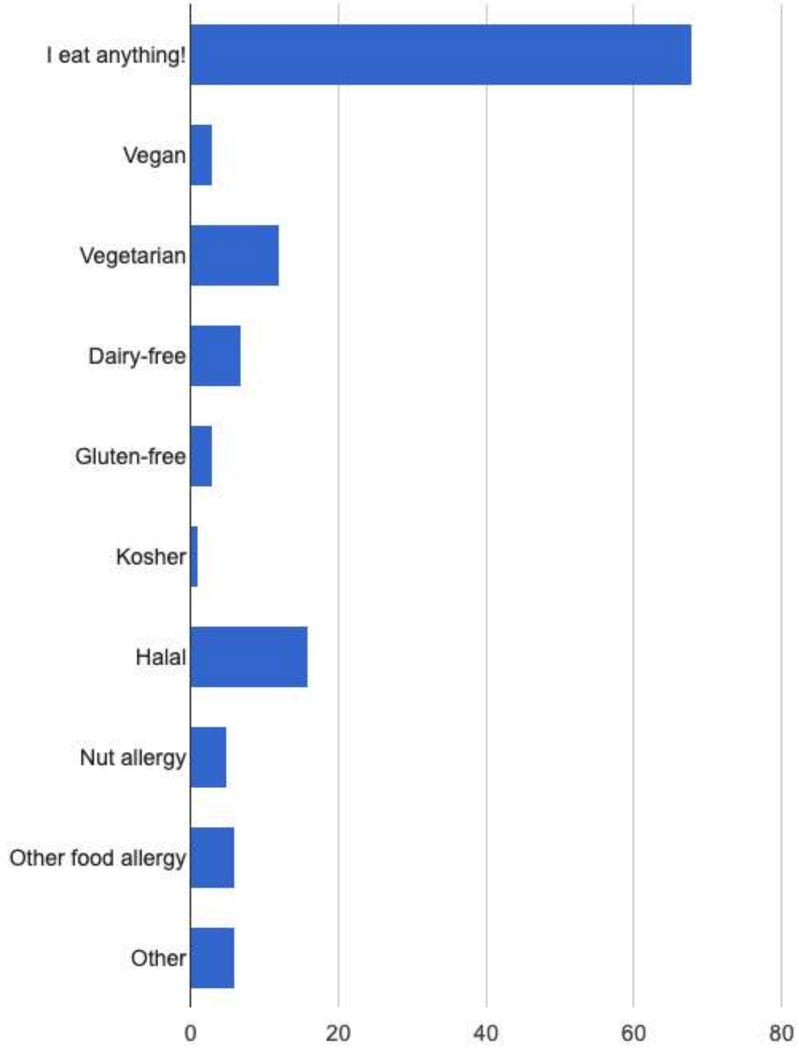
44%

Within the past 12 months, did the food you buy not last and did you not have money to get more?

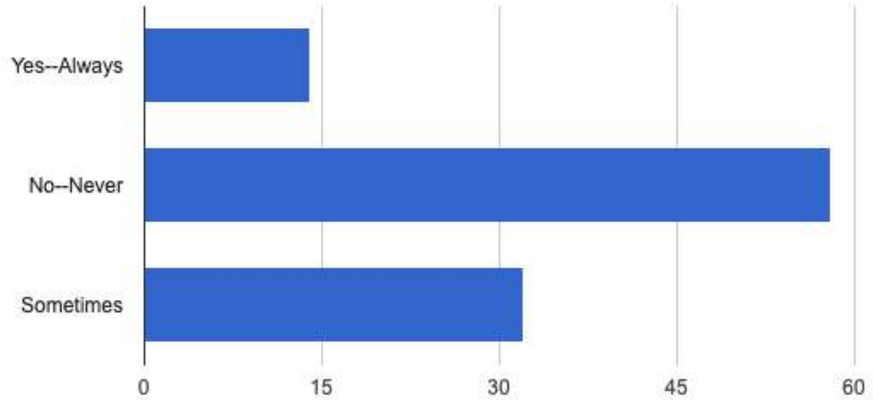


28%

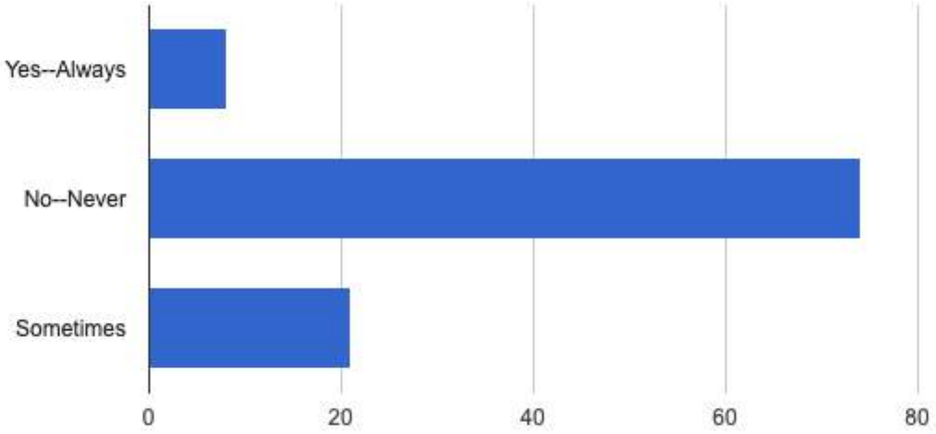
What does your diet look like?



Within the past 12 months, have you worried that your food would run out before you got money to buy more?

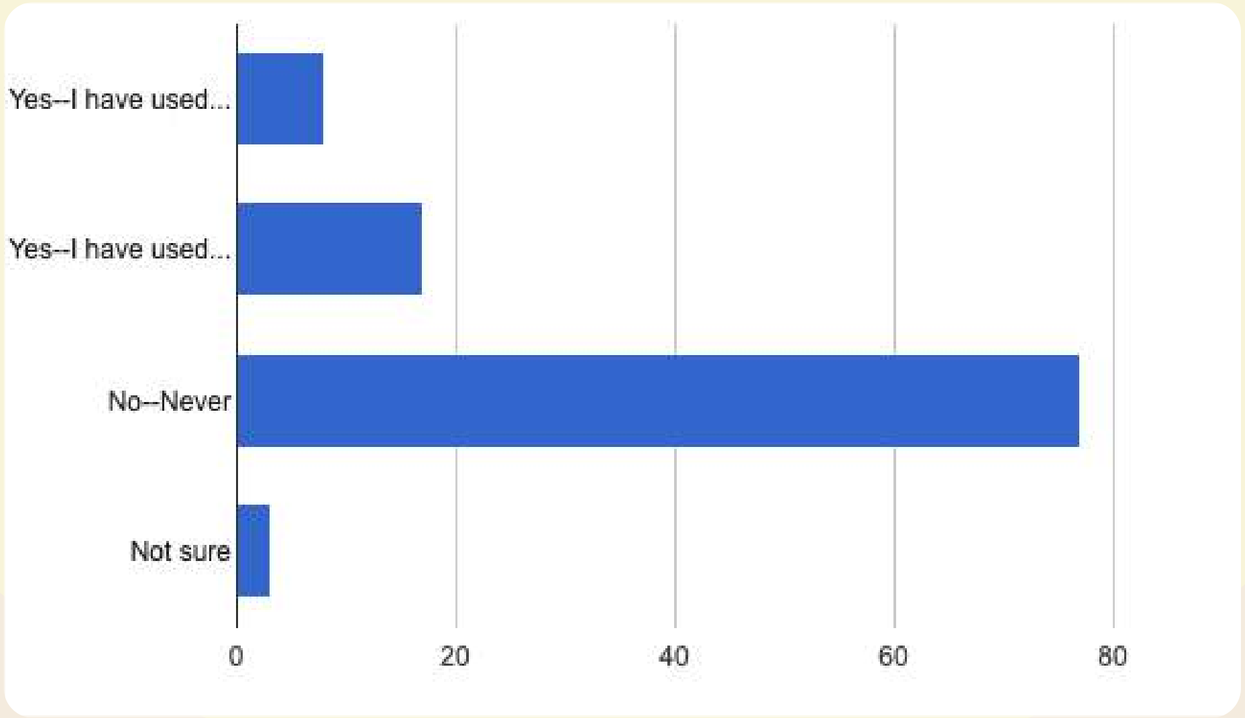


Within the past 12 months, did the food you buy not last and did you not have money to get more?

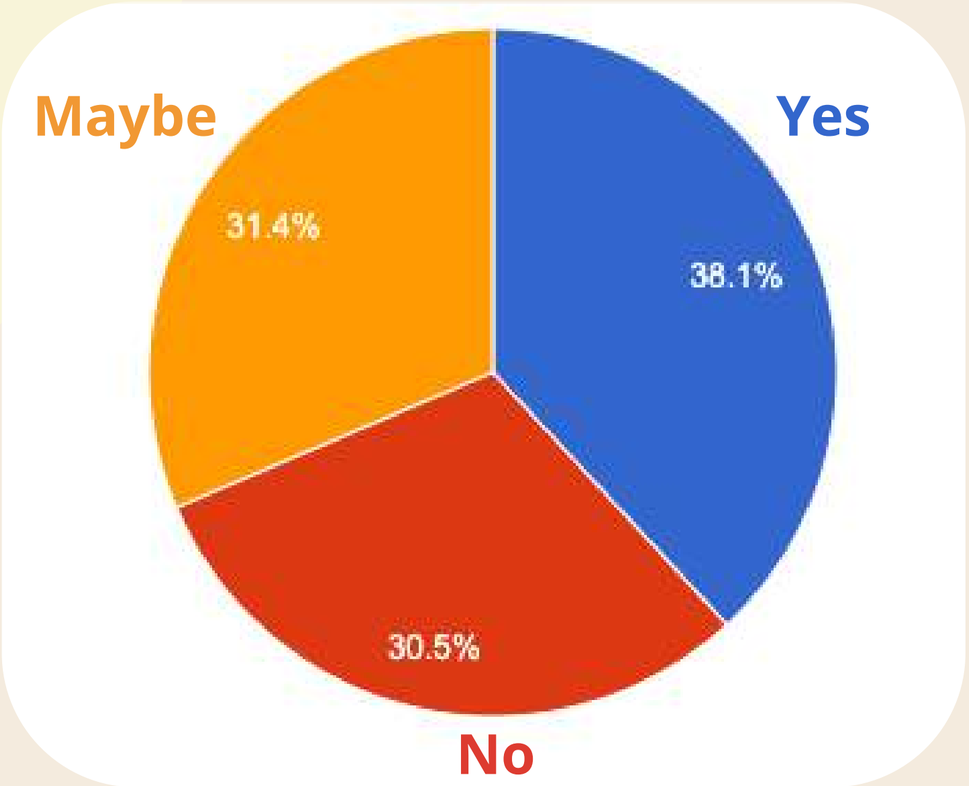


Current and Potential Usage

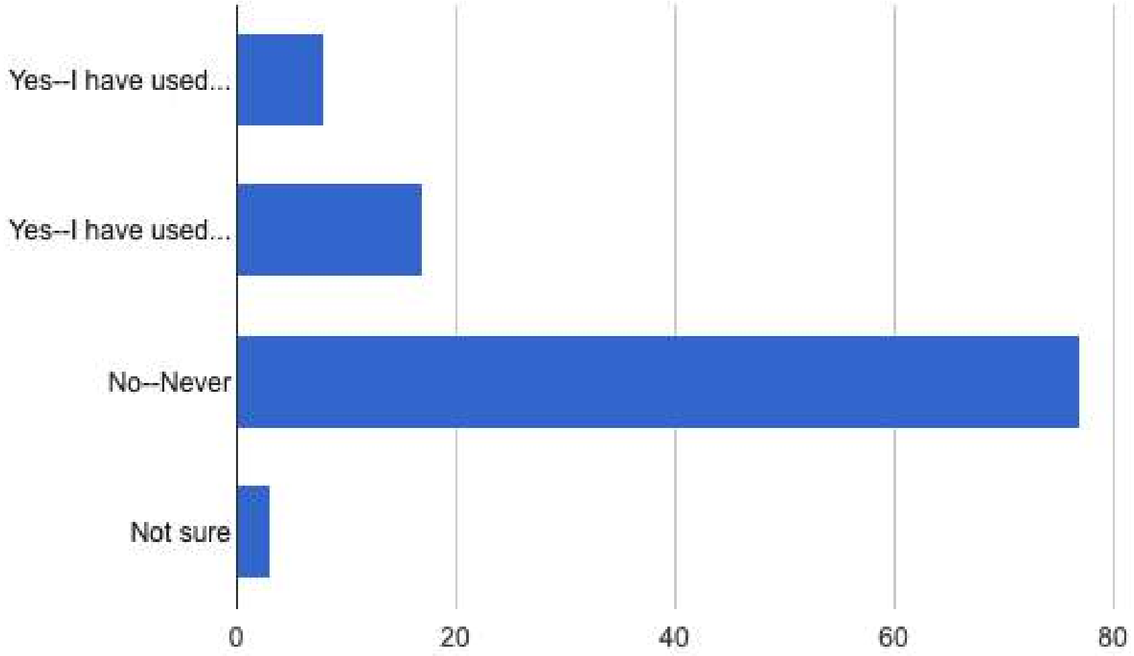
Have you ever used a community fridge?



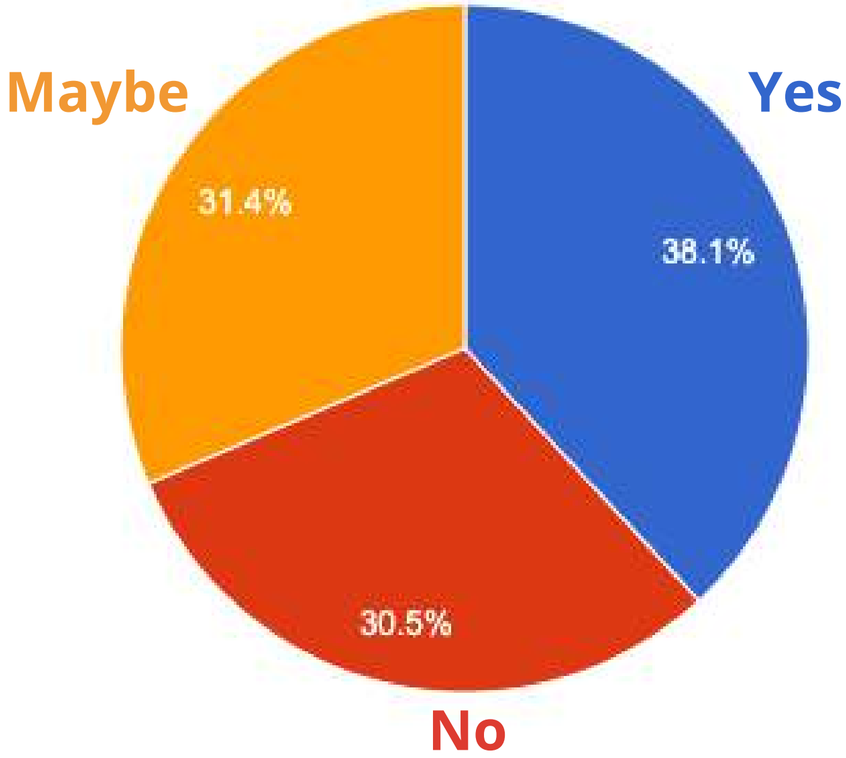
Would you use a community fridge if it was located in a convenient location for you?



Have you ever used a community fridge?



Would you use a community fridge if it was located in a convenient location for you?



On the Map

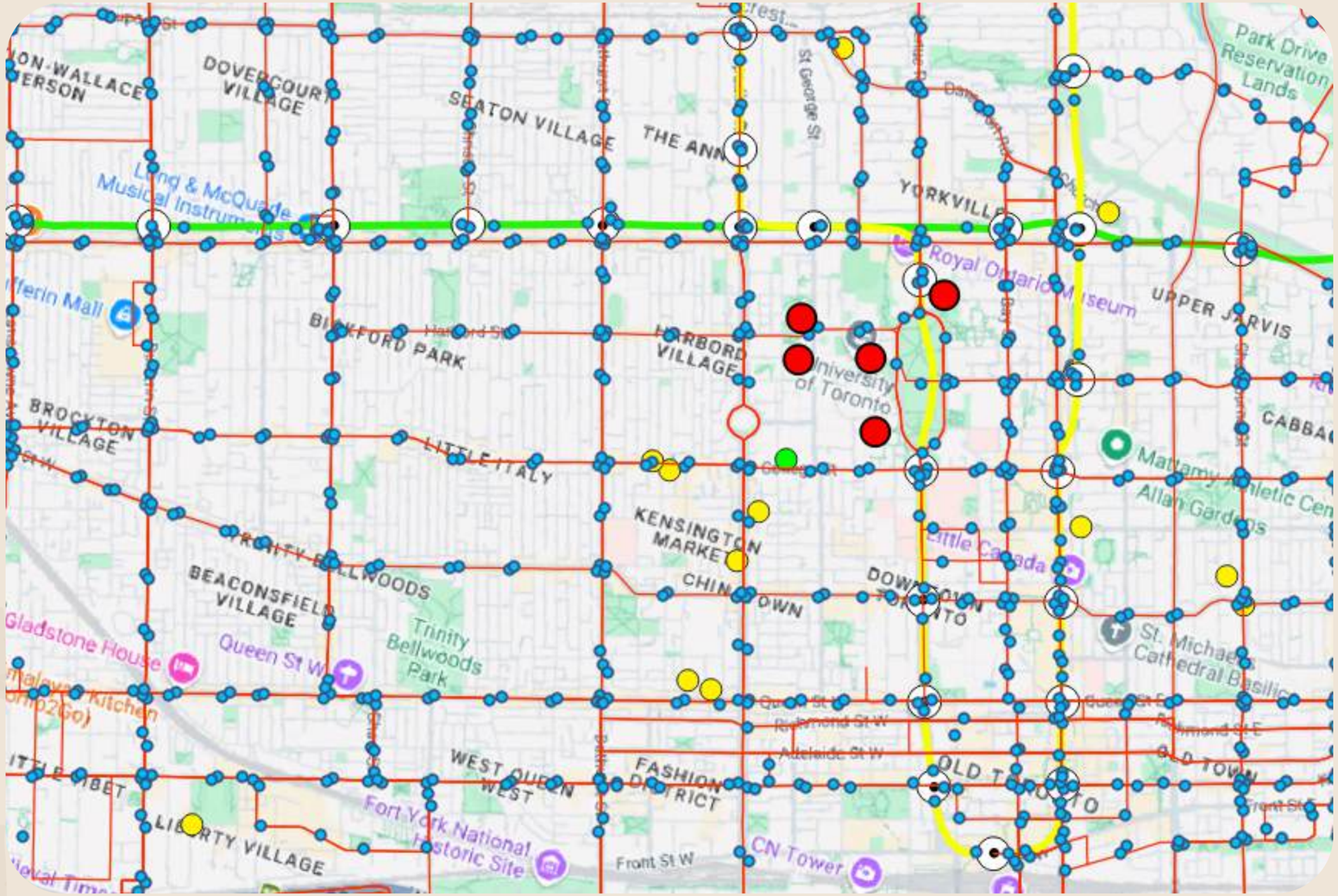
Sidney Smith	29
Robarts	26
Medical Science Building	14
Victoria College	13
Hart House	13
University College	12
UTSU	11
Bahen	10
Gerstein	10
St Michael's	10

Which building(s) do you think are optimal locations for campus community fridges?

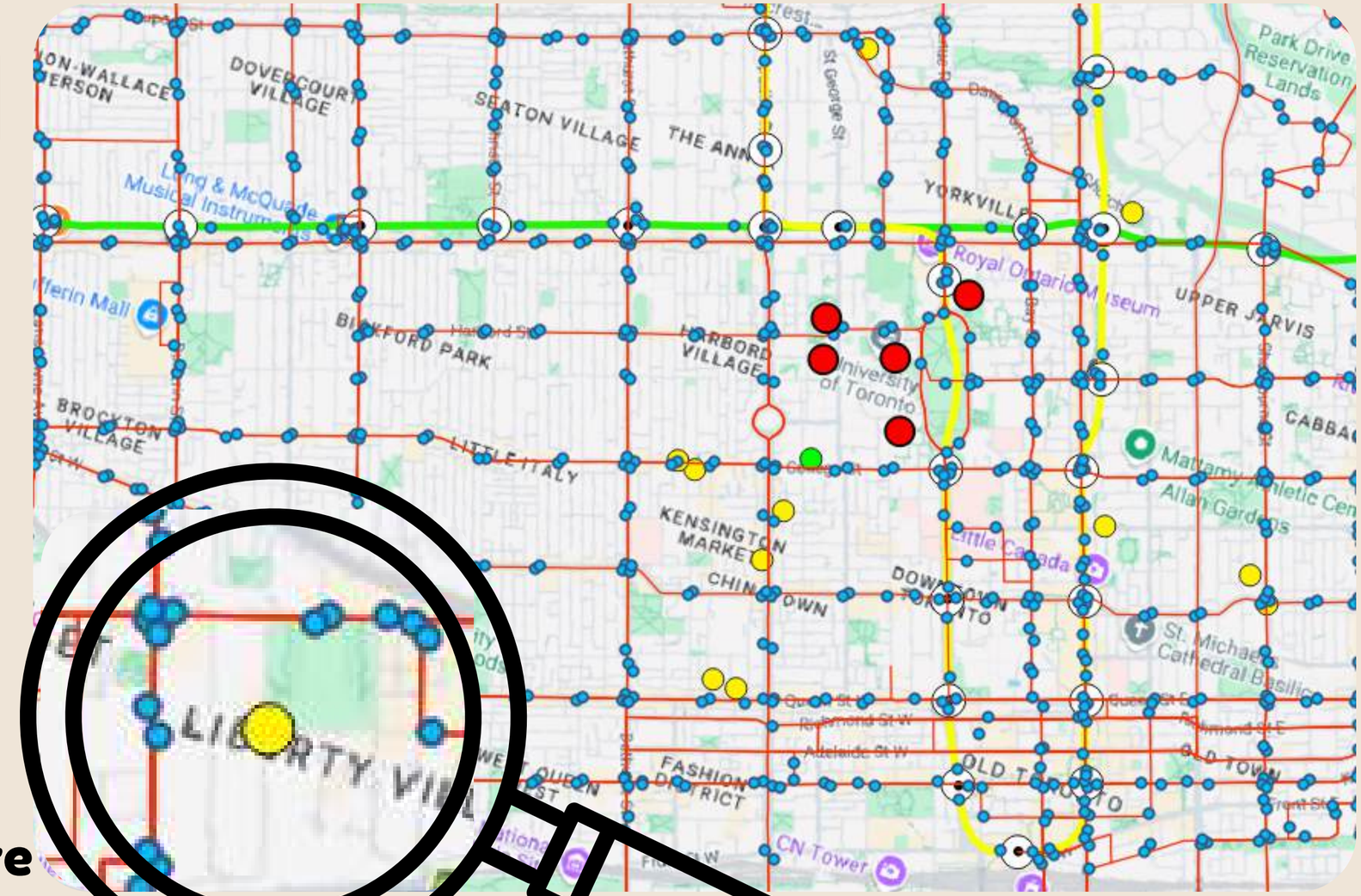
Niche Choices

Innis College	8
Varsity Arena	4
Athletic Centre	3
McLennan	3
Commuter Centers	2
OISE	2
Earth Science Building	2
Myhal	2
Student Center	2
Kelly	2
Victoria Student Pub	2
Convocation Hall	1
Woodsworth	1
Rotman	2
Daniels	1
Exam Center	1
Queen's Park	1

Locations Map

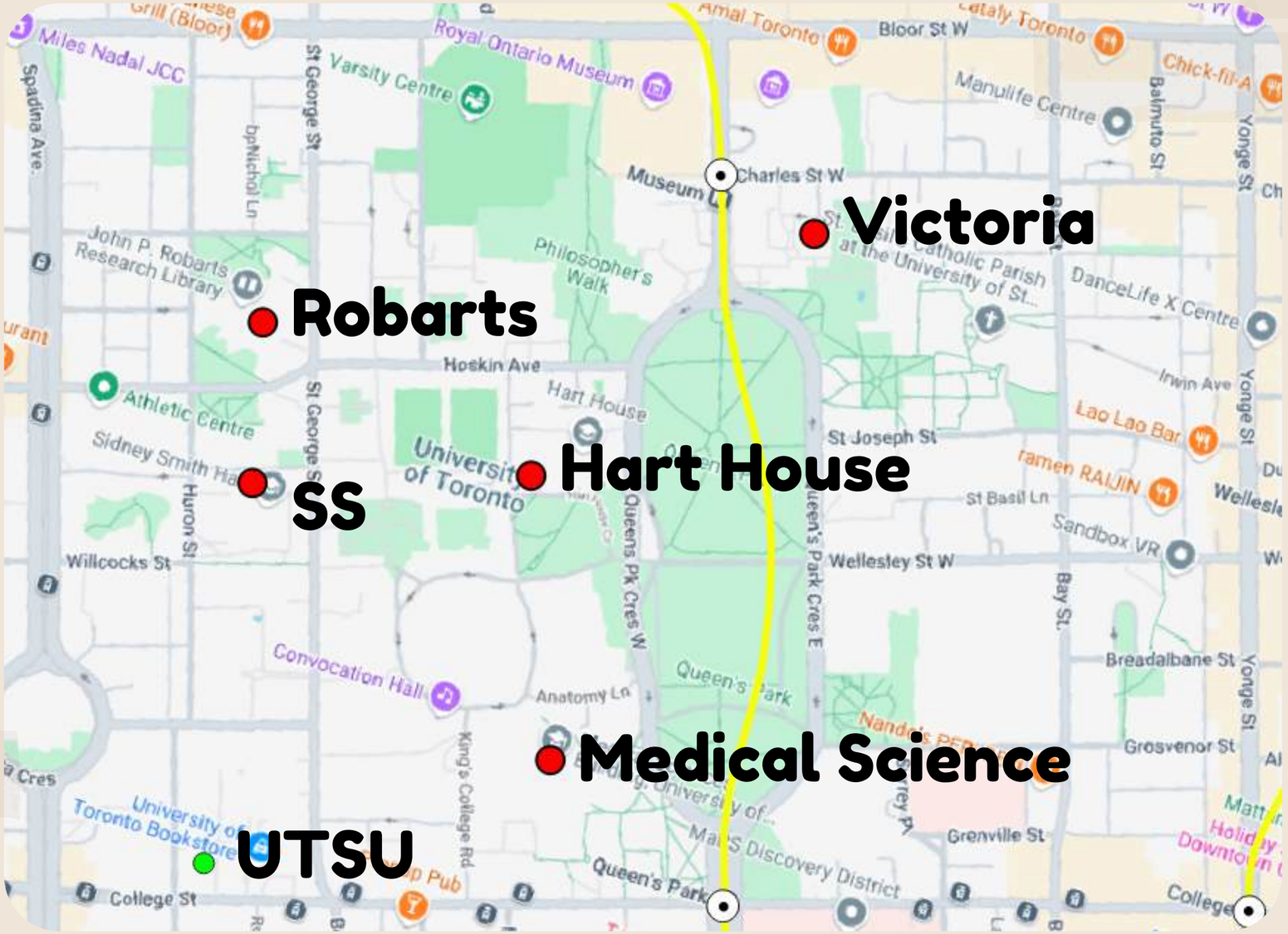


Locations Map



St felix centre
69 fraser ave

Locations Map



1

k-means clustering

28 languages

Article Talk | Read Edit View history Tools

From Wikipedia, the free encyclopedia

Not to be confused with k-nearest neighbors algorithm.

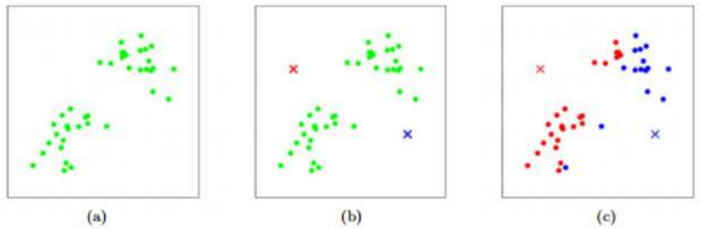
***k*-means clustering** is a method of vector quantization, originally from signal processing, that aims to partition *n* observations into *k* clusters in which each observation belongs to the cluster with the nearest mean (cluster centers or cluster centroid), serving as a prototype of the cluster. This results in a partitioning of the data space into Voronoi cells. *k*-means clustering minimizes within-cluster variances (squared Euclidean distances), but not regular Euclidean distances, which would be the more difficult Weber problem: the mean optimizes squared errors, whereas only the geometric median minimizes Euclidean distances. For instance, better Euclidean solutions can be found using *k*-medians and *k*-medoids.

The problem is computationally difficult (NP-hard); however, efficient heuristic algorithms converge quickly to a local optimum. These are usually similar to the expectation–maximization algorithm for mixtures of Gaussian distributions via an

Part of a series on
Machine learning and data mining

Paradigms	[show]
Problems	[show]
Supervised learning (classification • regression)	[show]
Clustering	[show]
Dimensionality reduction	[show]
Structured prediction	[show]
Anomaly detection	[show]
Artificial neural network	[show]

K-Means finds the best centroids by alternating between (1) assigning data points to clusters based on the current centroids (2) chosing centroids (points which are the center of a cluster) based on the current assignment of data points to clusters.



Research

- Find an algorithm for this matter
- Make researches and comparison
- Do it

2

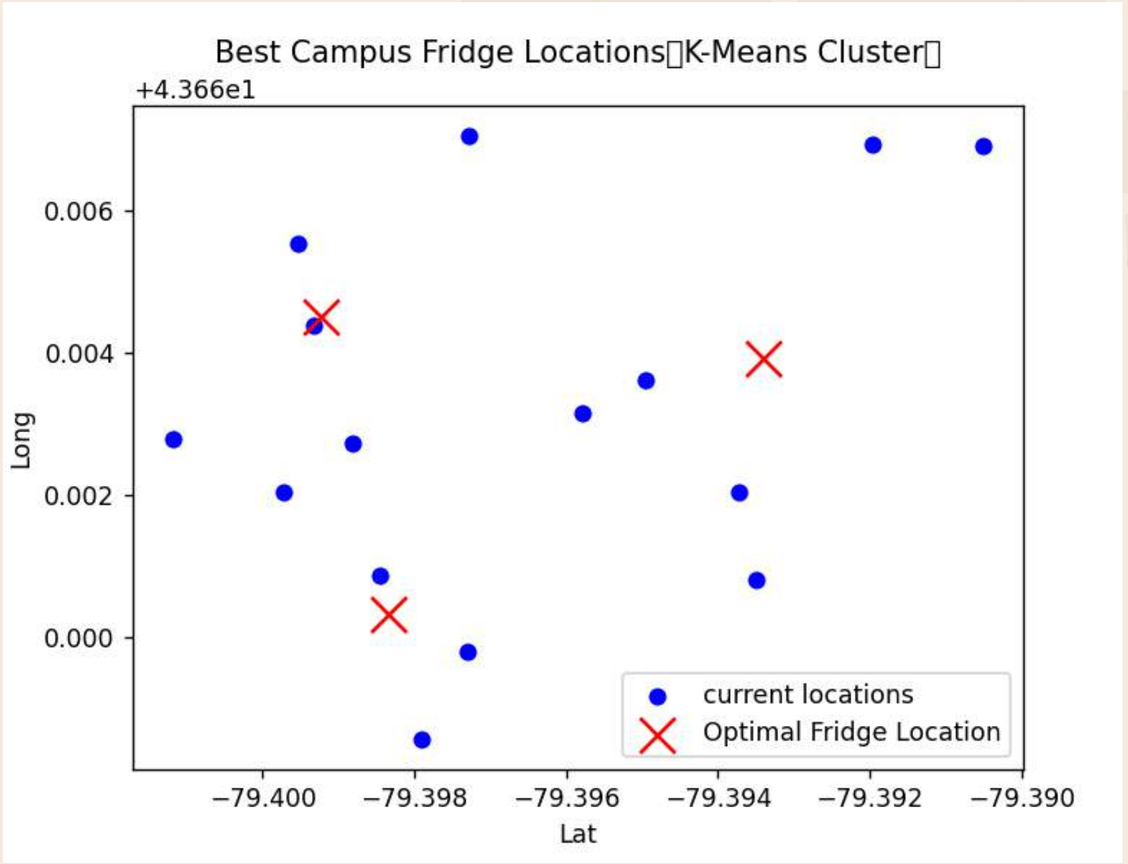
```
es: Assume we have several locations in campus and several partner'
the location is suggested/desired in the survey, then top 5 +10, to
the location has a community fridge already then -8
the location is close to a subway station then extra +3
the location is close to a partner's(food source) location then ext
the location has a residence(customer source/high population densit
the location is close to a potential storage locations then extra +
finition for close is <100m visually.
```

```python
#Set K means
kmeans = KMeans(n_clusters=3, random_state=42)
kmeans.fit(data[:, :2])  # Only use lat

# Get the center of cluster
optimal_fridge_sites = kmeans.cluster_centers_

# Visualization
plt.scatter(data[:, 1], data[:, 0], c='blue', label="current locati
plt.scatter(optimal_fridge_sites[:, 1], optimal_fridge_sites[:, 0],
plt.xlabel("Lat")
plt.ylabel("Long")
plt.legend()
plt.title("Best Campus Fridge Locations (K-Means Cluster)")
plt.show()
```

Program

- Learn to code K-means
- Design weight factors
- Do it

3

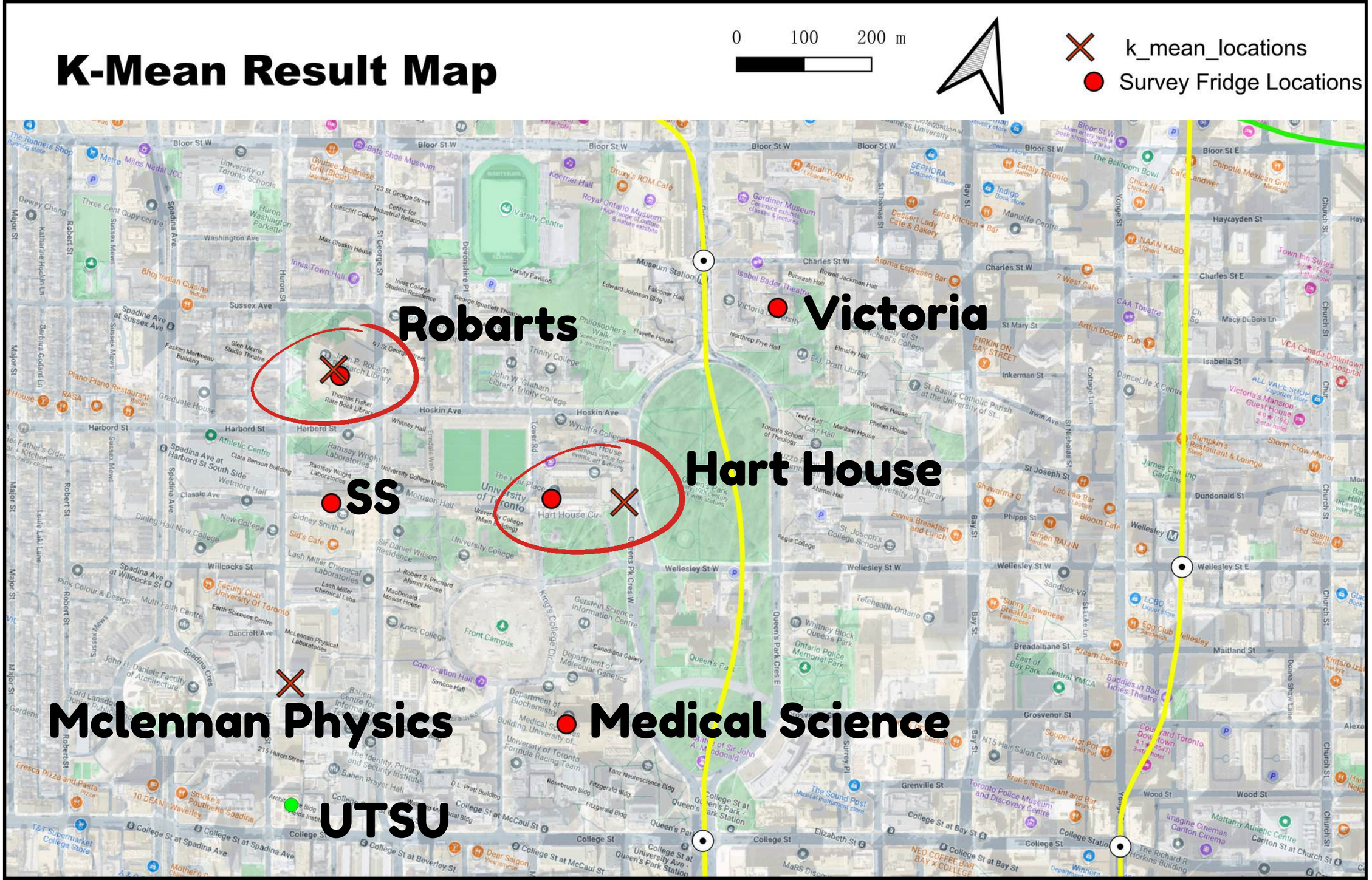


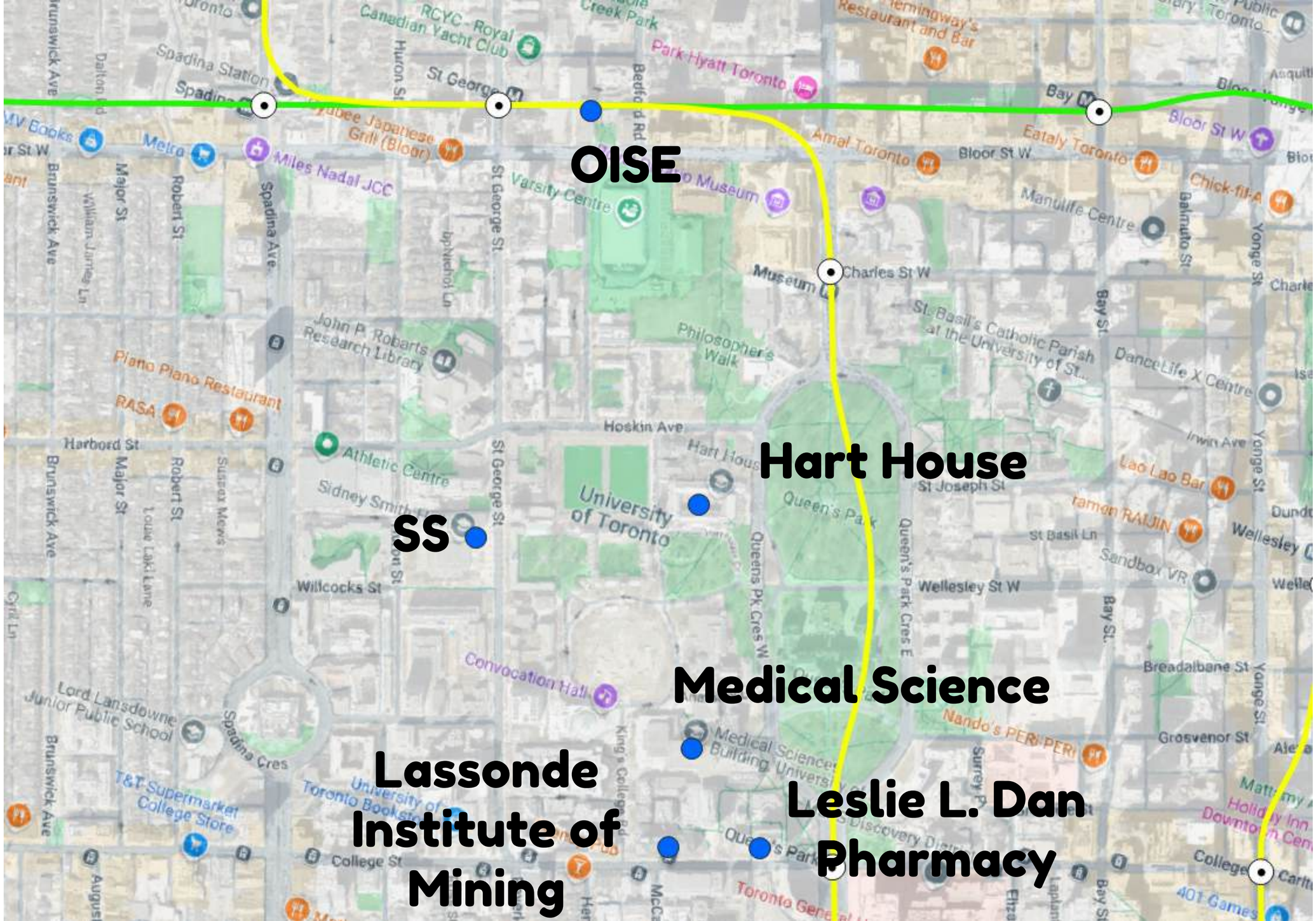

```
✓ print(optimal_fridge_sites)

[[ 43.66391283 -79.39340433]
 [ 43.6603255  -79.39833825]
 [ 43.6645014  -79.399223  ]]
```

Output

- Run the code
- Combine it with the map
- Do it

K-Mean Result Map




OISE
Hart House
SS
Medical Science
Lassonde Institute of Mining
Leslie L. Dan Pharmacy
University of Toronto
Spadina Station
St George
Bay
Museum
Charles St W
Bloor St W
Hoskin Ave
Willcocks St
Wellesley St W
Harbord St
College St
Spadina Ave
Bay St
Yonge St
Queen's Park
Philosopher's Walk
Convocation Hall
Medical Sciences Building
Lord Lansdowne Junior Public School
T&T Supermarket College Store
Miles Nadal JCC
Varsity Centre
Amal Toronto
Eataly Toronto
Manulife Centre
Park Hyatt Toronto
Canadian Yacht Club
Piano Piano Restaurant
RASA
Athletic Centre
Sidney Smith
John P. Robarts Research Library
Lao Lao Bar
Sandbox VR
Nando's PERI-PERI
Breadalbane St
Grosvenor St
Toronto General

Proposed Locations for storage locations

communications

Budget

I10

	A	B	C	D	E
1	**Category**	**Items**	**Quantity**	**Each cost**	**Total cost**
2	Equipment	Trolleys	3	120	360
3		Weighing Scales	3	100	500
4		Basic Cleaning Products	10	30	300
5		Deck Box	3	300	900
6		Fridges	3	520	1560
7	Security & Accessibility	Locks	3	30	90
8		Signage for fridge locations	10	30	300
9	Logistics & Operations	Reusable food containers	20	20	400
10		Additional shelving inside fridges	10	30	300
11		Trash & compost bins	10	50	500
12	Advertising & Outreach	Posters	50	1	50
13	Staffing & Volunteer Support	volunteer incentives	5	25	125
14		training sessions	3	50	150
15					
16					
17					**Total cost:**
18					**5535**
19					

Feedback on the Fridge

UTSU has one on 5th floor always runs out..

I've noticed that the form on the meal care fridge in the UTSU (and possibly other locations) does not get replaced in a timely manner when it is full, which suggests that the fridges themselves may not be getting checked often enough by volunteers/folks from the meal care community.

The MealCare fridges are not currently on the official campus map, I think it could be worth looking into getting the fridges added.

It could be helpful to have more frequent postings on the Mealcare Instagram about what is currently in the fridges, so students know what to expect.

Feedback on the Survey

wouldn't be using these fridges but I know they would be super helpful for others who would need them!

I think you should include a question about whether people would like to contribute to a community fridge, because while I typically do not need to resources I would love to contribute to provide for others.

There should be a section on this form where you say if you live with your parents or not, are a commuter/student living on campus (has access to dining hall)/student living off-campus (has even more reduced access to food).

Is a community fridge referring to something available in a fully public space or rather in a dorm or something?

Thank you for Listening

Comments or Questions?