**WORK OF BATTLE OF NEIGHBORHOOD**

Hajime Takashi, originally from Tokyo, is 33 years old.

She has learned that her company will be offering a

work, in which one of the requirements to access it, is to have a level of English

advanced.

Hajime's is intermediate, so in order to have more opportunities to get the

new job, will take advantage of an exchange program offered by the company that

has with New York (per 3 month period) to improve their English.

But this exchange only includes air travel and the work itself,

the daily expenses... are on your own)

His workplace is located on the border of the Manhattan district

and Queens, so you are looking for a hotel (that is as affordable as possible).

After searching, he is hesitating between two hotels (one in Manhattan and one in Queens

of very similar characteristics)

To make the final decision, you will consider several criteria:

-Hajime Takashi, is concerned about the level of obesity in the U.S. (over 25%,

while in your home country, it is less than 4%), so you would like to continue

with its oriental food, therefore, would like to have Japanese restaurants

(and quality) near the hotel you end up choosing.

- In connection with the issue of reduced obesity in Japan, Hajime would like to

be able to join a gym that was close to the hotel

-Finally, he would like a park nearby, so he can walk, breathe

some fresh air.

Taking into account all this, we are going to compare the two hotels on which

Hajami is hesitating: The Roosevelt Hotel (located in Manhattan) and the Bliss Hotel

(located in Queens).

Hajime Takahashi, has the following utility function, which depends on 3

variables:

u(x,y,z)

The variable x alludes to Japanese restaurants, the variable y to gyms

and the variable z to the parks.

The utility function of Hajime Takahashi, with respect to the restaurants would be the following:

f(u) = 0.9(x1) - 0.1(x2)

Where x1 refers to the evaluation of the score of the restaurant

and x2 refers to the distance of the restaurant from the corresponding hotel.

In this case, we have used a linear utility function to simplify the problem.

Before starting the calculation, we are going to divide the total ratio we have applied into

Foursquare (700) at distances, to normalize the variables

680/700 = 0.9714

302/700 = 0.4314

And the scores:

9/10 = 0.9

8.2/10 = 0.82

Therefore, we will calculate our level of utility once we have described the

variables (once the best place is filtered):

The Roosevelt Hotel - Sakagura Restaurant

f(u) = 0.9(0.9) - 0.1(0.9714) = 0.81 - 0.09714 = 0.71286

Hotel Bliss- Iki Modern Japanese Cuisine Restaurant

f(u) = 0.9(0.82) - 0.1(0.4314) = 0.738 - 0.04314 = 0.69486

The utility function of Hajime Takahashi, with respect to the gyms would be as follows:

f(u) = 0.7(y1) - 0.3(y2)

Where y1 refers to the evaluation of the gym's score and y2 refers to

reference to the distance of the gym from the corresponding hotel.

In this case, we have used a linear utility function to simplify the problem.

Before starting the calculation, we are going to divide the Maximum ratio we have applied into

Foursquare (3000) at distances, to normalize the variables:

217/3000 = 0.0723

2858/3000 = 0.9526

And the scores:

7.7/10 = 0.77

7.3/10 = 0.73

Therefore, let's calculate in which case our level of utility would be higher

(taking into account before, the place that gave the highest level of utility):

The Roosevelt Hotel - Yale Club Gym

f(u) = 0.7(0.77) - 0.3(0.0723) = 0.539 - 0.02169 = 0.51731

Hotel Bliss - Fitzgerald Gym

f(u) = 0.7(0.73) - 0.3(0.9526) = 0.511 - 0.28578 = 0.22522

The utility function of Hajime Takahashi, with respect to the parks would be as follows:

f(u) = 0.6(z1) - 0.4(z2)

Where z1 refers to the evaluation of the park's score and z2 refers to

reference to the distance of the park from the corresponding hotel.

In this case, we have used a linear utility function to simplify the problem.

Before starting the calculation, we are going to divide the Maximum ratio we have applied into

Foursquare (3500) at distances, to normalize the variables

381/3500= 0.10886

2064/3500= 0.58971

And the scores:

9.5/10 = 0.95

9.1/10= 0.91

Therefore, let's calculate in which case our level of utility would be higher

(we have previously chosen the best places according to taste):

The Roosevelt Hotel- Bryant Park

f(u) = 0.6(0.95) - 0.4(0.10886) = 0.57 - 0.043544 = 0.526456

Hotel Bliss - Flushing Meadows Corona Park

f(u) = 0.6(0.91) - 0.4(0.58971) = 0.546 - 0.23588 = 0.31012

Once we have calculated the profits for the different locations, we will calculate the profit

global, weighted according to the tastes of Hajime Takahashi:

u(x,y,z) = 0.5u(x)+0.3u(y)+0.2u(z)

The Roosevelt Hotel:

fu(x,y,x) = 0.5(0.71286)+0.3(0.51737)+0.2(0.526456) = 0.35643 + 0.15521 + 0.10529 = 0.61693

Hotel Bliss:

f(x,y,z) = 0.5(0.69486)+0.3(0.22522)+0.2(0.31012) = 0.34743 + 0.06756 + 0.06202 = 0.47701

Therefore, Mr. Takahashi, according to the criteria we have described

previously, we would recommend that you choose "The Roosevelt Hotel", as it offers

a higher profit (almost 14% higher) than the "Hotel Bliss".

Therefore, in this particular example (with this very personalized context) of "

Battle of the Neighborhoods" would impose Manhattan on Queens.