Project Report

Course Code: CSE135

Course Title: Data Structures LAB

Project Name: ONE CLICK (Digital tour guide)

Submitted To

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Abstract

Bangladesh is a country with many beautiful and historical places worth visiting. Now a days, tourists from all over the world come here and want to enjoy this beauty. But there is no digital tour guide for Bangladesh. There is no simple way to know the distances between these great and visit worthy places.

Therefore, we tried to make a digital tour guide for our country. It calculates the distances between places and make suggestions if there is more places worth visiting.

This document gives an overview of our work.

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Introduction

Our goal was simple: to make a digital tour guide so that tourists, specially foreigners, can know about the amazing places our country has with only one click.

This is a digital world. People always want everything in their hands. But there is nothing handy in our tourism industry. No simple way to know about the beautiful and historical places of Bangladesh. We just want to give it to them.

So, we have developed a C based program which can suggest tourists about amazing places they can see and calculate the distances between the cities and visit-worthy places between them.

It is just a beta version. ONE CLICK 1.0.0 (BETA) works with only three cities now: Dhaka, Khulna and Sylhet. But we want to develop it for the whole country and we are currently working on it.

Project Description

As we said earlier, this program is developed with C. It makes suggestions, so that user can choose a starting point of the journey and a destination city. Then, it suggests user about places they can visit on the way and calculate the total distances of their journey. To do that, we need to use ‘Graph Data Structure’.

Graph Data Structure:

It is a non-linear data structure. A graph is a pictorial representation of a set of objects where some pairs of objects are connected by links. It can be implemented by matrices and link list. We used matrix based implementation.

A graph data structure consists two thing:

- Nodes / Vertices
- Connecting lines / Edges

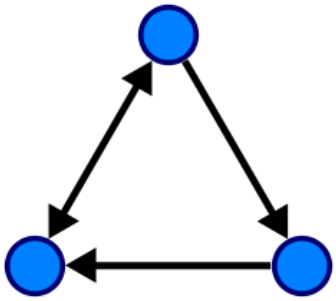

Figure 1: Graph Data Structure consists of vertices and Edges.

Source Code:

```
#include<stdio.h>
#include<malloc.h>

void fromto(int ft)
{
   if(ft == 1)
   {
      printf("Dhaka\n");
   }
```

```
    else if(ft==2)
    {
        printf("Khulna\n");
    }
    else if(ft== 3)
    {
        printf("Sylhet\n");
    }
}

void DtoK(int from, int to)
{
    float dk[3][3];
    dk[0][0] = 0;
    dk[0][1] = 40.2;
    dk[0][2] = 212;

    dk[1][0] = 40.2;
    dk[1][1] = 0;
    dk[1][2] = 184;

    dk[2][0] = 212;
    dk[2][1] = 184;
    dk[2][2] = 0;

    printf("\nThere is a 'Padma Resort' you can visit on the way. Are you interested?\nYes - 1, No - 2\n");
```

```
    int choice;
    scanf("%d", &choice);
    if(choice == 2 )
    {
        printf("Distance: %.1f km\n", dk[0][2]);
    }
    else
    {
        if(from == 1)
        {
            printf("From Dhaka to Padma Resort\nDistance: %.1fkm\n", dk[0][1]);
            printf("From Padma Resort to Khulna\nDistance: %.1fkm\n", dk[1][2]);
        }
        else
        {
            printf("From Khulna to Padma Resort\nDistance: %.1fkm\n", dk[2][1]);
            printf("From Padma Resort to Dhaka\nDistance: %.1fkm\n", dk[1][0]);
        }
    }
}

void DtoS(int from, int to)
{
    float dk[3][3];
    dk[0][0] = 0;
    dk[0][1] = 111;
    dk[0][2] = 235;
```

```
    dk[1][0] = 111;
    dk[1][1] = 0;
    dk[1][2] = 213;

    dk[2][0] = 235;
    dk[2][1] = 213;
    dk[2][2] = 0;


    printf("\nThere is a 'Shalban Vihara' you can visit on the way. Are you interested?\nYes - 1, No - 2\n");
    int choice;
    scanf("%d", &choice);
    if(choice == 2 )
    {
        printf("Distance: %.1f km\n", dk[0][2]);
    }
    else
    {
        if(from == 1)
        {
            printf("From Dhaka to Shalban Vihara\nDistance: %.1fkm\n", dk[0][1]);
            printf("From Shalban Vihara to Sylhet\nDistance: %.1fkm\n", dk[1][2]);
        }
        else
        {
            printf("From Sylhet to Shalban Vihara\nDistance: %.1fkm\n", dk[2][1]);
```

```
            printf("From Shalban Vihara to Dhaka\nDistance: %.1fkm\n", dk[1][0]);
        }
    }
}

int main()
{
    int from, to;
    int choice = 1;

    printf("Welcome to One Click!\n");
    printf("Your Trusted Digital Tour Guide\n\n");
    printf("Press -1 to exit. To continue, press 1\n\n");

    while(choice!=-1)
    {
        printf("Press respected number to choose respected city:\n");
        printf("->Dhaka - 1\n->Khulna - 2\n->Sylhet - 3\n");

        printf("\nFrom: ");
        scanf("%d", &from);

        printf("\nTo: ");

        scanf("%d", &to);

        printf("\nFrom: ");
```

```
    fromto(from);

    printf("\nTo: ");
    fromto(to);

    if((from == 1 || from == 2) && (to == 1 || to == 2))
    {
       DtoK(from, to);
    }
    else if((from == 1 || from == 3) && (to == 1 || to == 3))
    {
       DtoS(from, to);
    }
    else if((from == 2 || from == 3) && (to == 2 || to == 3))
    {
       if(from==2)
       {
          printf("You can't go directly from Khulna to Sylhet. You need to go there via Dhaka.");
          DtoK(from, 1);
          DtoS(1, to);
       }
       else if(from==3)
                {
                   printf("You can't go directly from Sylhet to Khulna. You need to go there via Dhaka.");
                   DtoS(from, 1);
                   DtoK(1, to);
```

```
                }
        }
        printf("\n\nPress -1 to exit. To continue, press 1\n");
        scanf("%d", &choice);
    }
    return 0;
}
```

Project Overview

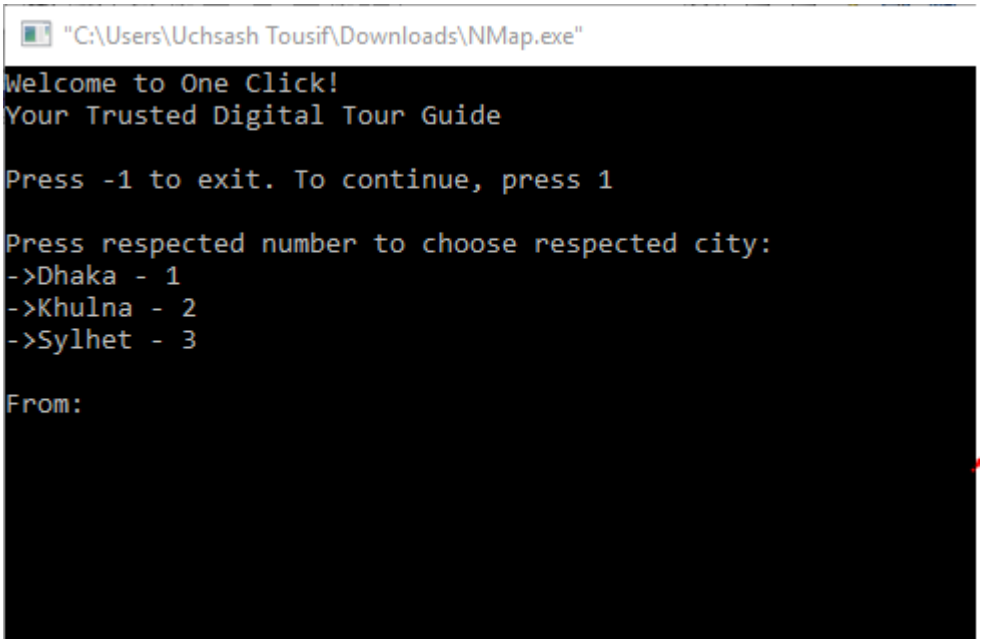

Figure 2: The three city ONE CLICK 1.0.0 (BETA) covers now

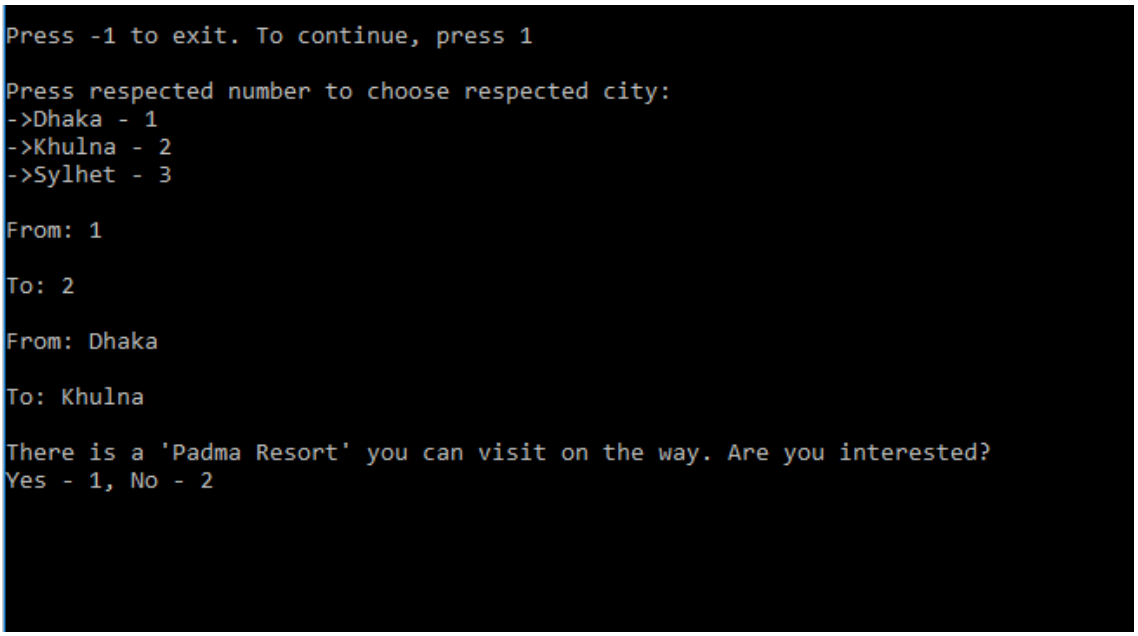

Figure 3: User chose Dhaka as the starting point and Khulna as the Destination and ONE CLICK suggesting that there is a visit-worthy place user can visit on the way

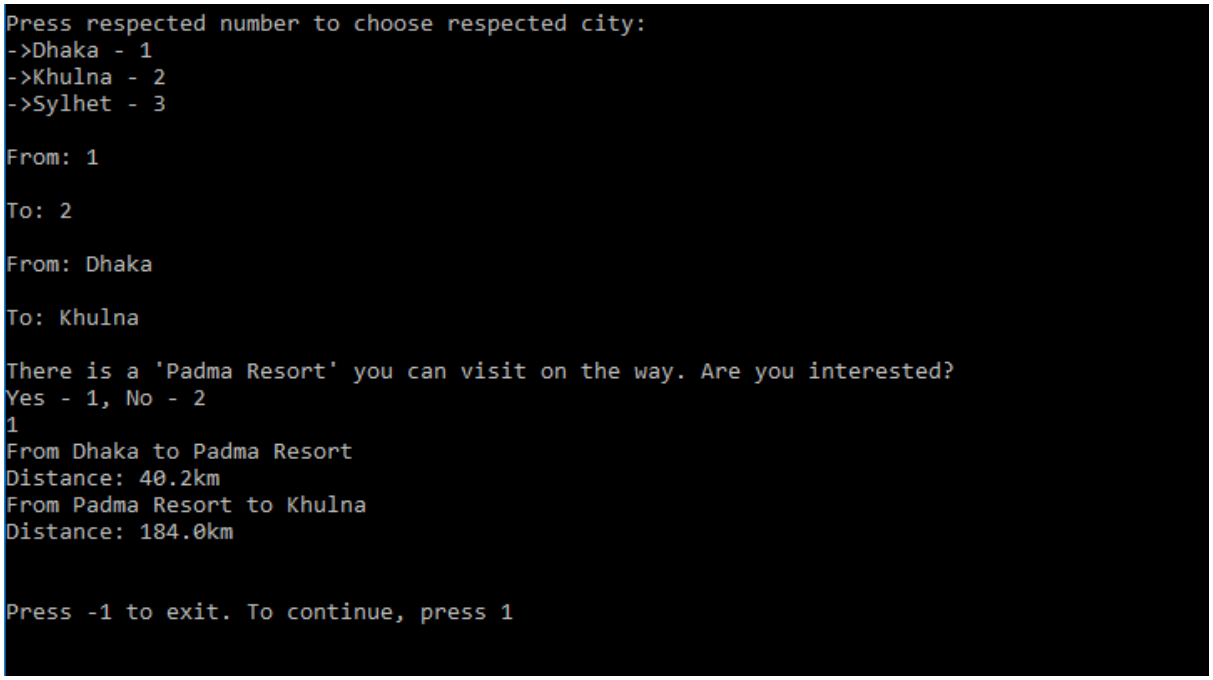

Figure 4: User wanted to see the place. So, ONE CLICK calculates each distance and let him/her know

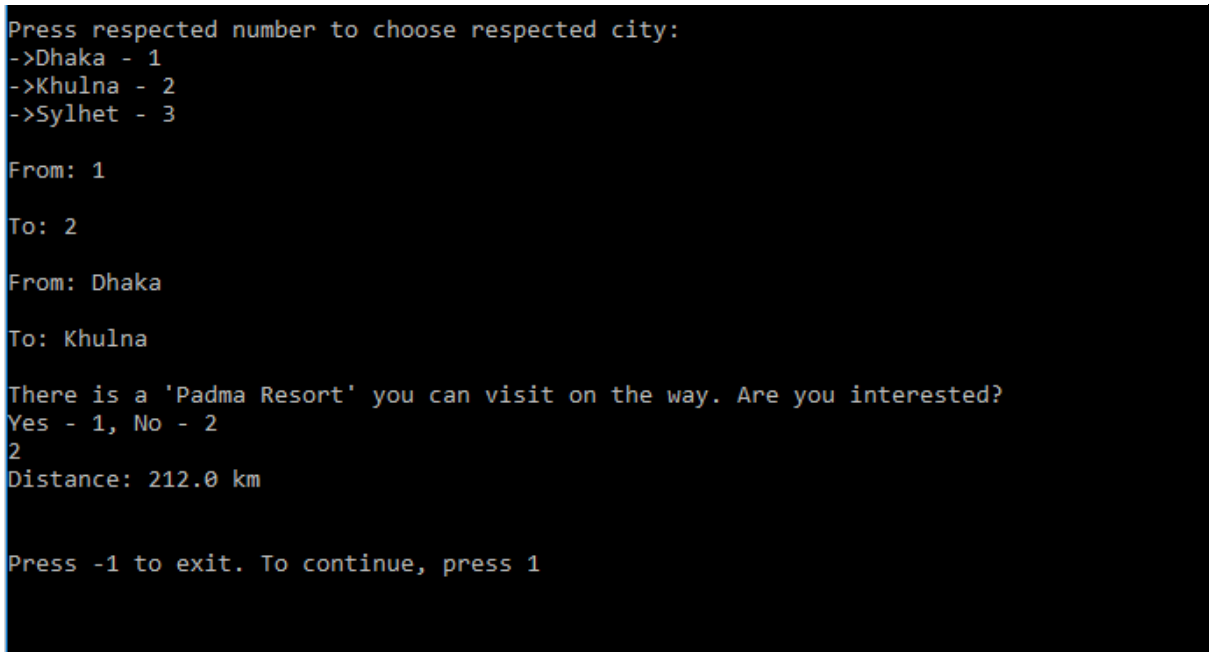

Figure 4: If user does not want to see the place on the way, ONE CLICK will calculate the total distance between the starting point and the destination and let him/her know

Expected outcome

- Enrich our tourism industry
- Suitable guidance for people (specially, for foreign tourists)
- Simple way to know and visit worthy places
- Reducing tour-guide cost
- Keep up with today's digital world

Future Work

- Vehicle wise cost will be included in near future
- Vehicle wise journey duration will also be included in near future
- The program will be implemented for all the districts of Bangladesh

Conclusion

This project is designed for travel-lovers. We hope, it will help the people, enrich our tourism sector and play a crucial role to animate the economical wheel of our country.

Reference

[1] Md. Rahim Iqbal, "Data Structure Complete Self-study", Unpublished Manuscript, DIU, Dhaka, Bangladesh, pp. 58-60 [Online]. Available: https://drive.google.com/file/d/0B9Mv1JjCg9jpNmJpUVFhWmN3TTQ/view. [Accessed: Mar. 23, 2018]

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