

Project DMM 1312: Computer Programming (100 marks, 30% Course Marks)

Online Bus Ticket System

You have been hired as a system's developer by University Malaysia Pahang (UMP) express bus spin-off company called Sana Express. The company operates buses from UMP Pekan Campus to many places in Malaysia for example Kuala Lumpur, Kuantan, Johor Baharu, Penang, and many more. You have been asked by the company's Director, Mr Jamel Mokhtar to develop a system to allow for the selling of bus ticket online.

With the programming skills in C that you have learned so far, you are confident and brave enough to take upon this task (if you are not confident, just let the Director know so that you can be fired right away!).

The Director has listed **FIVE (5)** several important aspects of the online bus ticket system, as follows:

- i. The system would allow user to choose their destination (to and from).
- ii. The system would allow user to choose bus seat.
- iii. The system would allow user to know the price for each seat and destination.
- iv. The system would allow user to choose their date of the journey.
- v. The system would allow user to do payment of the ticket.

The Director will award extra points for you if you manage to use your creativity and thinking skills in solving **ONE (1)** of the following problems:

- i. The system will be able to show user which seats are still available (either by diagram or number) after one or more users purchased a seat.
- ii. The system will be able to allow user to buy multiple tickets for multiple seats, destination and etc. Then, the system will allow for cumulative price ticket payment. This is useful to allow user to buy tickets in bundle.
- iii. The system will be able to allow user to go back to the previous section. For example, from doing payment to go back to seat selection, to allow user to modify their choices.
- iv. The system will be able to allow user to enter their name, identity card (IC) number, gender and etc. Then, the system will be able to display the buyer's gender for seats that are already selected. This is useful for people who wants to sit only next to their similar gender.

The Director also wants you to utilise things that you have learned, particularly *functions, array, if statement, while statement, switch statement, and for statement*. Please also use *comments* in your code to describe the meaning of your code.

You can discuss with your friends, but in the end, the system is **individual**.

You can do the project while **in lab**, where the Director is there, **ready to help** you and provide ideas.

Example Program and Output

```
#include <stdio.h>
int origin()//This function determines the origin
{
    int place;
    printf("Please choose your origin: \n");
    printf("1: UMP Pekan\t2: UMP Gambang\n");
    scanf("%d", &place);
    printf("Your origin is ");
    return place;
}

int destination()//This function determines the destination
{
    int place;
    printf("Please choose your destination: \n");
    printf("1: UMP Pekan\t2: UMP Gambang\n");
    scanf("%d", &place);
    printf("Your destination is ");
    return place;
}

void places(int place)//This function prints the places chosen
{
    switch(place){
        case 1: printf("UMP Pekan\n");
        break;
        case 2: printf("UMP Gambang\n");
        break;
    }
}

int price(int place[])//This function calculates the ticket price
{
    int distance;
    distance=place[1]-place[0];
    distance*=5;
    printf("Ticket price is RM %d", distance);
    return distance;
}

int main()//This is the main function
{
    int place[2],distance;
    place[0]=origin();
    places(place[0]);
    place[1]=destination();
    places(place[1]);
    distance=price(place);
    return 0;
}
```

```
Please choose your origin:  
1: UMP Pekan    2: UMP Gambang  
1  
Your origin is UMP Pekan  
Please choose your destination:  
1: UMP Pekan    2: UMP Gambang  
2  
Your destination is UMP Gambang  
Ticket price is RM 5
```

Markings Scheme

Total marks: **30**

Tasks	Marks	Marks Description
Solve the first FIVE (5) instructions from Director	Each instruction = 15 marks	Each 15 marks consists of: <ul style="list-style-type: none"> • Code clarity (eg: comments that show the function/code section that execute the instruction) (3 marks) • Functioning/working (2 marks) • Using appropriate control statement (at least one) (4 marks) • Utilising function (eg: putting each instruction in function(s)) (4 marks) • Creativity (eg: codes are properly aligned/tabbed, clear display) (2 mark)
	Total = 75 marks	15x5=75
Solve ONE additional instruction from Director	One instruction = 25 marks If student managed to accomplish more = 10 marks per instruction added to the total marks. You may gain more than 100 marks, which will be rounded to 100.	The 25 marks consists of: <ul style="list-style-type: none"> • Code clarity (eg: comments that show the function/code section that execute the instruction) (3 marks) • Functioning/working (5 marks) • Creative solution (i.e.: by using things that you learned to solve the problem(s), or nearly solve the problem(s), you are not expected to completely solve the problem(s)) (15 marks) • Creativity (eg: codes are properly aligned/tabbed, clear display) (2 mark)
	Total = 25 marks	
	Total = 100 marks	Overall Course marks = 30%