



ASIA METROPOLITAN UNIVERSITY

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FOUNDATION IN INFORMATION TECHNOLOGY

FFTS 1224

FUNDAMENTAL OF PROGRAMMING

TITLE

AIRFARE PRICING CALCULATING SYSTEM

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Introduction

Programming control structures are a set of commands that control the flow of execution in a program. These structures determine the order in which instructions are executed and allow for different paths to be taken based on certain conditions. Some common control structures include if-else statements, loops, and switch statements. This system was built using switch statement where `switch(destination[0])` was used which refers to the first character of the string named 'destination'. This will allow us to choose between different path of execution based on the value of an expression. If the value of `destination[0]` matches a 'case' value, the corresponding code block is disassociated with that 'case' executed. Lastly, blocks enclosed with curly braces `{}` or semicolon `;` for single statement.

The Airline Ticket Booking System uses control structures to determines the price of a passenger's ticket based on the passenger's age and the country of travel. The system is written in the C++ programming language. The system's main objective is to provide customers with access to an accurate and efficient ticket pricing system. The user must enter the destination country and the passenger's age into the system. The system will calculate the passenger's ticket cost based on age. The cost of the ticket varies depending to the passenger's age group and the destination nation. Customers who purchase tickets throughout the festival month will also receive promotional discounts on the overall ticket price via the system. The promotional discounts are provided according with the country that the clients have chosen.

The Airline Ticket Booking System is an effective and user-friendly tool that enables clients to book their tickets easily and affordably. In addition to accurate age and country-based ticket price calculations, it also offers promotional savings during the festival month. For airlines and travel businesses looking to give their clients an easier booking experience, this approach is helpful.

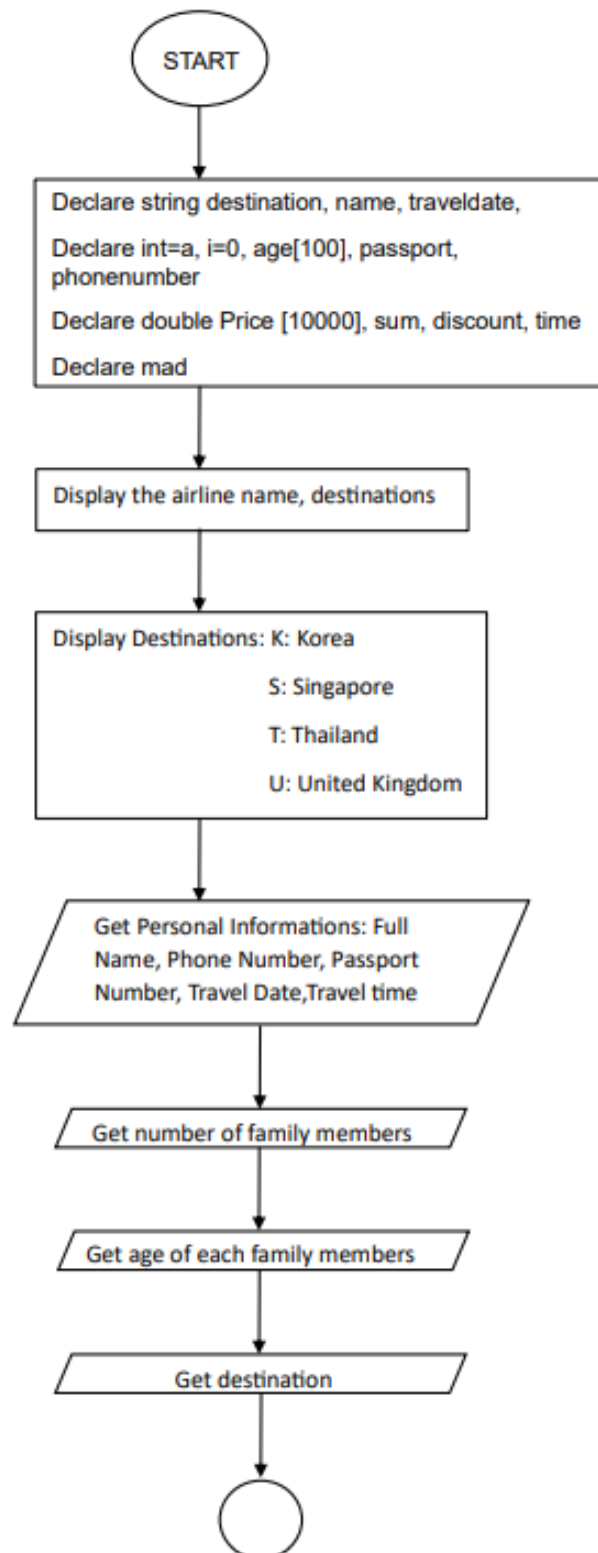
Destination	Age	Ticket Price
Korea	Less than 2 years old	RM 0
	Between 6 to 12 years old	RM 1000
	Between 13 to 59 years old	RM 3500
	More than 60 years old	RM 2300
Singapore	Less than 2 years old	RM 0
	Between 6 to 12 years old	RM 100
	Between 13 to 59 years old	RM 400
	More than 60 years old	RM 200
Thailand	Less than 2 years old	RM 0
	Between 6 to 12 years old	RM 250
	Between 13 to 59 years old	RM 500
	More than 60 years old	RM 200
United Kingdom	Less than 2 years old	RM 0
	Between 6 to 12 years old	RM 1150
	Between 13 to 59 years old	RM 4500
	More than 60 years old	RM 3200

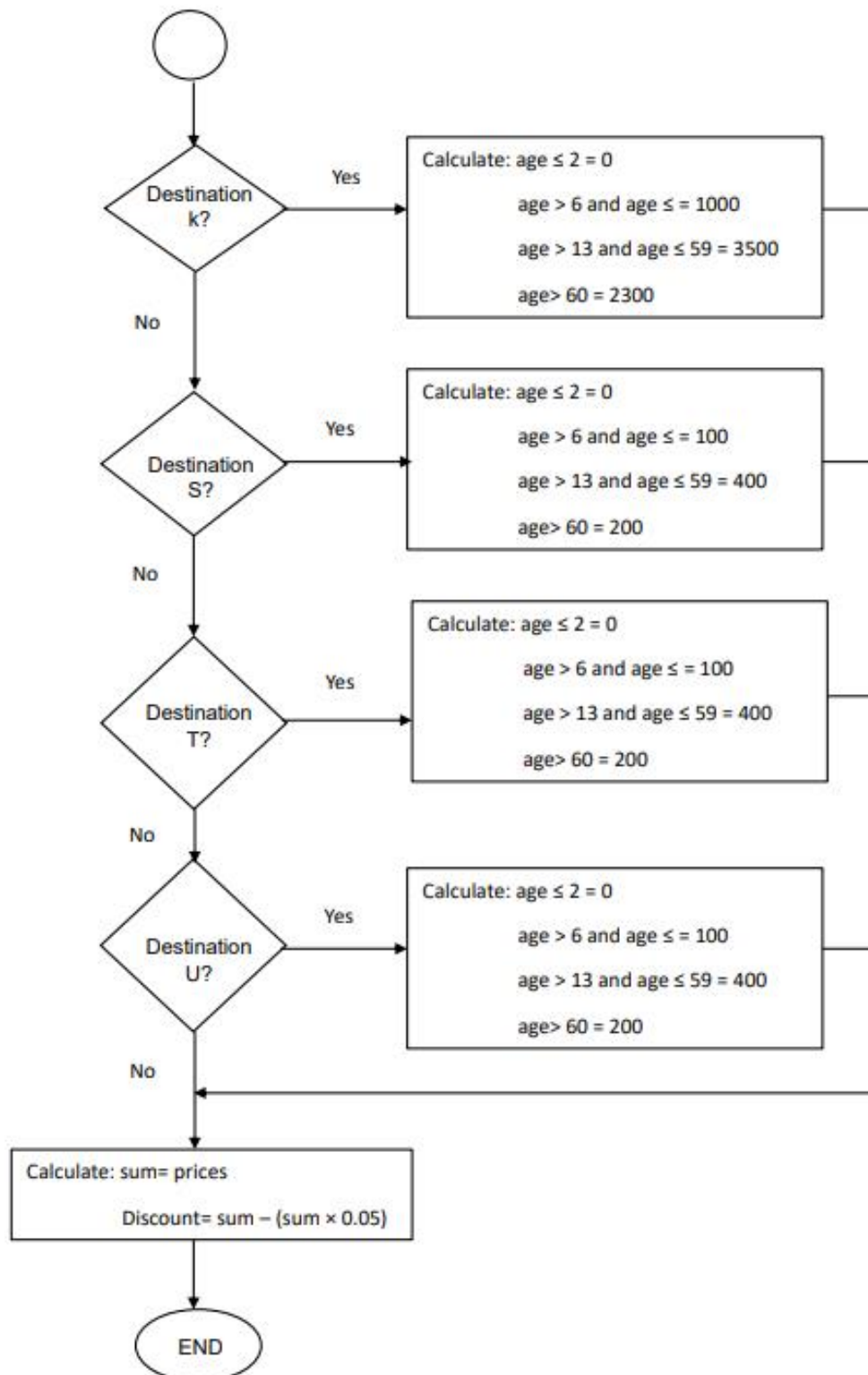
Table 1: Ticket prices according to age and country

Objective of Program

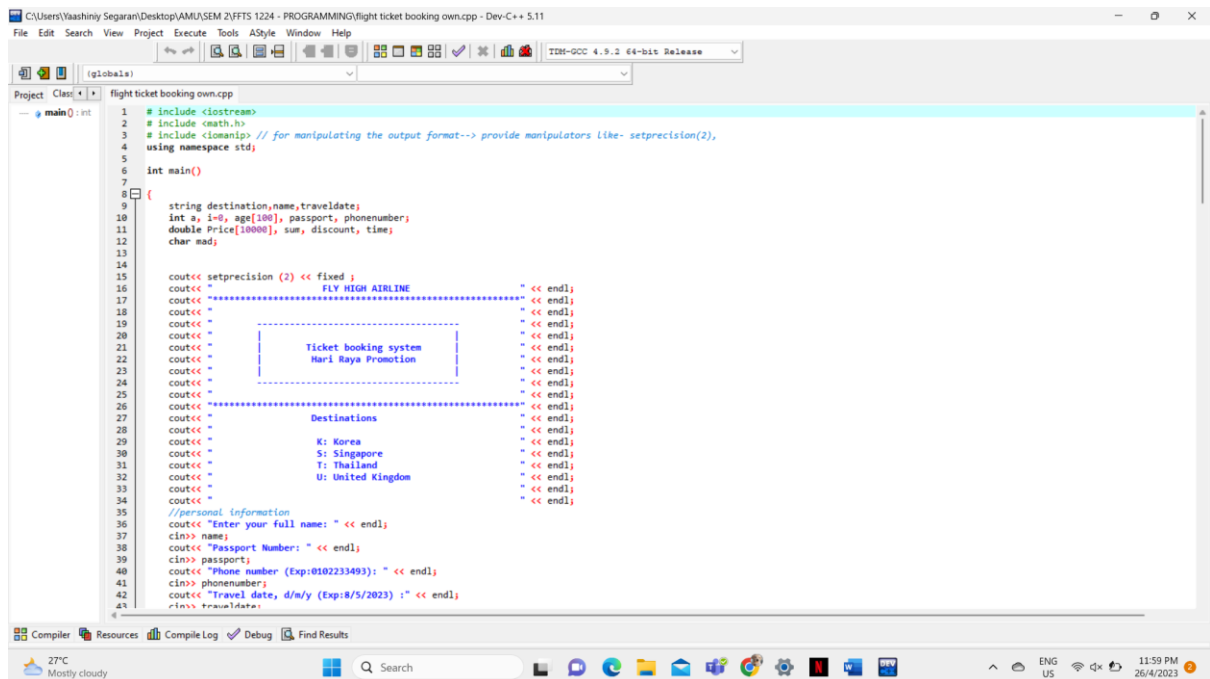
1. Determine the cost of the tickets based on the passenger's age and the countries they select as their destination.
2. To give customers an efficient ticket booking experience.
3. Provide customers with a special discount based on the destination country they choose during the festival month.
4. Make sure that the ticket pricing and discounts are calculated accurately to prevent any trouble for the customers.

Program Design (Flowchart)

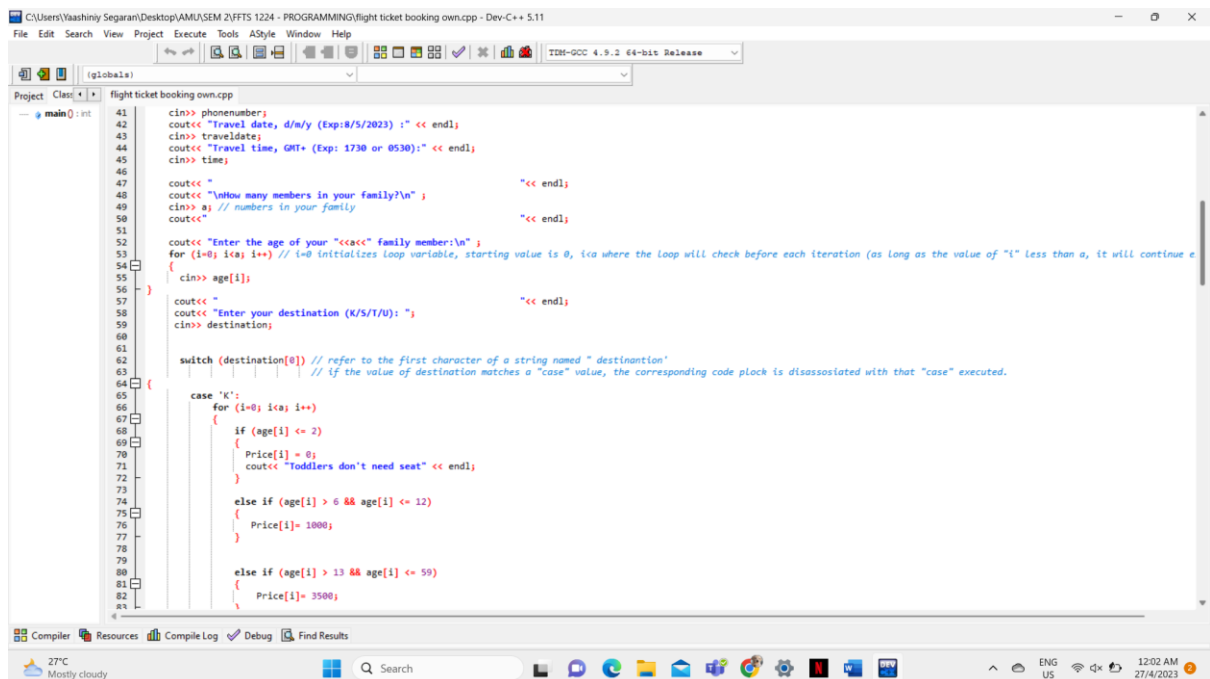




Implementation



```
1 #include <iostream>
2 #include <math.h>
3 #include <iomanip> // for manipulating the output format--> provide manipulators like- setprecision(2),
4 using namespace std;
5
6 int main()
7 {
8     string destination,name,traveldate;
9     int a, i=0, age[100], passport, phonenumber;
10    double Price[10000], sum, discount, time;
11    char mad;
12
13
14    cout<< setprecision(2) << fixed <<
15    cout<< "FLY HIGH AIRLINE" << endl;
16    cout<< "===== " << endl;
17    cout<< " " << endl;
18    cout<< " " << endl;
19    cout<< "Ticket booking system" << endl;
20    cout<< "Hari Raya Promotion" << endl;
21    cout<< " " << endl;
22    cout<< "===== " << endl;
23    cout<< "Destinations" << endl;
24    cout<< " " << endl;
25    cout<< "K: Korea" << endl;
26    cout<< "S: Singapore" << endl;
27    cout<< "T: Thailand" << endl;
28    cout<< "U: United Kingdom" << endl;
29    cout<< " " << endl;
30    //personal information
31    cout<< "Enter your full name: " << endl;
32    cin>> name;
33    cout<< "Passport Number: " << endl;
34    cin>> passport;
35    cout<< "Phone number (Exp:0102233493): " << endl;
36    cin>> phonenumber;
37    cout<< "Travel date, d/m/y (Exp:8/5/2023) : " << endl;
38    cin>> traveldate;
39    cin>> time;
```



```
41    cin>> phonenumber;
42    cout<< "Travel date, d/m/y (Exp:8/5/2023) : " << endl;
43    cin>> traveldate;
44    cout<< "Travel time, GMT+ (Exp: 1730 or 0530): " << endl;
45    cin>> time;
46
47    cout<< " " << endl;
48    cout<< "\nHow many members in your family?\n" << endl;
49    cin>> a; // numbers in your family
50    cout<< " " << endl;
51
52    cout<< "Enter the age of your "<<a<<" family member:\n" << endl;
53    for (i=0; i<a; i++) // i=0 initializes loop variable, starting value is 0, i=a where the loop will check before each iteration (as long as the value of "i" less than a, it will continue e
54    {
55        cin>> age[i];
56    }
57
58    cout<< " " << endl;
59    cout<< "Enter your destination (K/S/T/U): " << endl;
60    cin>> destination;
61
62    switch (destination[0]) // refer to the first character of a string named " destination"
63    { // if the value of destination matches a "case" value, the corresponding code block is disassociated with that "case" executed.
64        case 'K':
65            for (i=0; i<a; i++)
66            {
67                if (age[i] <= 2)
68                {
69                    Price[i] = 0;
70                    cout<< "Toddlers don't need seat" << endl;
71                }
72                else if (age[i] > 2 && age[i] <= 12)
73                {
74                    Price[i] = 1000;
75                }
76                else if (age[i] > 13 && age[i] <= 59)
77                {
78                    Price[i] = 3500;
79                }
80            }
81        }
82    }
```



```
C:\Users\sking\Downloads\flight ticket booking own (1).cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug flight ticket booking own (1).cpp

138 cout<< "Total amount for your tickets is: RM "<< sum << endl;
139 cout<< "Price after discount: RM "<< discount << endl;
140 cout<< " " << endl;
141 cout<< "Your tickets have been booked successfully. " << endl;
142 cout<< "The receipt have been sent to your Whatsapp. " << endl;
143 cout<< " " << endl;
144 cout<< " " << endl;
145 cout<< " " << endl;
146 cout<< " " << endl;
147 cout<< " " << endl;
148 cout<< " " << endl;
149 cout<< " " << endl;
150 cout<< " " << endl;
151 cout<< " " << endl;
152 cout<< " " << endl;
153 cout<< " " << endl;
154 cout<< " " << endl;
155 cout<< " " << endl;
156 cout<< " " << endl;
157 cout<< " " << endl;
158 cout<< " " << endl;
159 cout<< " " << endl;
160 cout<< " " << endl;
161 cout<< " " << endl;
162 cout<< " " << endl;
163 cout<< " " << endl;
164 cout<< " " << endl;
165 cout<< " " << endl;
166 cout<< " " << endl;
167 cout<< " " << endl;
168 cout<< " " << endl;
169 cout<< " " << endl;
170 cout<< " " << endl;
171 cout<< " " << endl;
172 cout<< " " << endl;
173 cout<< " " << endl;

break;

case 'T':
for (i=0; i<a; i++)
{
if (age[i] <= 2)
{
Price[i] = 0;
cout<< "Toddlers dont need seats" << endl;
}

else if (age[i] > 6 && age[i] <= 12)
{
Price[i] = 250;
}

else if (age[i] > 13 && age[i] <= 59)
{
Price[i] = 500;
}

else if (age[i] >= 60)
{
Price[i] = 200;
}
}
}

Compiler Resources Compile Log Debug Find Results
Line: 1 Col: 1 Sel: 0 Lines: 236 Length: 7819 Insert Done parsing in 0.375 seconds
```

```
C:\Users\sking\Downloads\flight ticket booking own (1).cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug flight ticket booking own (1).cpp

175 sum <= Price[i];
176 discount = sum*(sum*0.05);
177
178 cout<< " " << endl;
179 cout<< "Total amount of your tickets is: RM"<< sum << endl;
180 cout<< "Price after discount: RM "<< discount << endl;
181 cout<< " " << endl;
182 cout<< "Your tickets have been booked successfully. " << endl;
183 cout<< "The receipt have been sent to your Whatsapp. " << endl;
184 cout<< " " << endl;
185 cout<< " " << endl;
186 cout<< " " << endl;
187 cout<< " " << endl;
188 cout<< " " << endl;
189 cout<< " " << endl;
190 cout<< " " << endl;
191 cout<< " " << endl;
192 cout<< " " << endl;
193 cout<< " " << endl;
194 cout<< " " << endl;
195 cout<< " " << endl;
196 cout<< " " << endl;
197 cout<< " " << endl;
198 cout<< " " << endl;
199 cout<< " " << endl;
200 cout<< " " << endl;
201 cout<< " " << endl;
202 cout<< " " << endl;
203 cout<< " " << endl;
204 cout<< " " << endl;
205 cout<< " " << endl;
206 cout<< " " << endl;
207 cout<< " " << endl;
208 cout<< " " << endl;
209 cout<< " " << endl;
210 cout<< " " << endl;

break;

case 'U':
for (i=0; i<a; i++)
{
if (age[i] <= 2)
{
Price[i] = 0;
cout<< "Toddlers dont need seats" << endl;
}

else if (age[i] > 6 && age[i] <= 12)
{
Price[i] = 1150;
}

else if (age[i] > 13 && age[i] <= 59)
{
}
}
}

Compiler Resources Compile Log Debug Find Results
Line: 1 Col: 1 Sel: 0 Lines: 236 Length: 7819 Insert Done parsing in 0.375 seconds
```

```
CAUsers\sking\Downloads\flight ticket booking own (1).cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug flight ticket booking own (1).cpp

199     Price[i] = 0;
200     cout<< "Todlers dont need seats" << endl;
201 }
202
203     else if (age[i] > 6 && age[i] <= 12)
204     {
205         Price[i]= 1150;
206     }
207
208
209     else if (age[i] > 13 && age[i] <= 59)
210     {
211         Price[i]= 4500;
212     }
213
214     else if (age[i] >= 60)
215     {
216         Price[i]= 3200;
217     }
218
219     sum += Price[i];
220     discount = sum-(sum*0.05);
221 }
222 cout<< "
223         Total amount of your tickets is: RM "<< sum <<endl;
224 cout<< "
225         Price after discount: RM "<< discount << endl;
226 cout<< "
227         Your tickets have been booked successfully.
228         The receipt have been sent to your whatsapp.
229 cout<< "
230 cout<< "
231 cout<< " WE ARE READY WHEN YOU ARE,HAVE A SAFE RIDE WITH US
232
233 }
234 return mad;

Compiler Resources Compile Log Debug Find Results
Line: 1 Col: 1 Sel: 0 Lines: 236 Length: 7819 Insert Done parsing in 0.375 seconds
```

Control Structures

1. Sequential: This refers to the flow of statements in the code that are executed one after the other in the order in which they are written. For example, in this code, the statements to prompt the user for input, get the user input, and calculate the ticket prices are all executed sequentially.
2. Selection: This refers to using conditional statements (such as if-else or switch) to select different actions to take based on certain conditions. In this code, the switch statement is used to select different ticket prices based on the destination entered by the user, and the if-else statements are used to select different prices based on the age of each family member.
3. Iteration: This refers to using loops (such as for or while) to repeat a block of code multiple times. In this code, used to take input for “age” of the ‘a’ family members. The loop will execute ‘a’ time and take input for each family members.

Testing

(Sample 1)

```
C:\Users\sking\Downloads\fl x + v
FLY HIGH AIRLINE
*****
Ticket booking system
Hari Raya Promotion
*****
Destinations
K: Korea
S: Singapore
T: Thailand
U: United Kingdom
Enter your full name:
pavi
Passport Number:
27
Phone number (Exp:0102233493):
0149866138
Travel date, d/m/y (Exp:8/5/2023) :
10/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
0900
How many members in your family?
2
Enter the age of your 2 family member:
```

```
C:\Users\sking\Downloads\fl x + v
Phone number (Exp:0102233493):
0149866138
Travel date, d/m/y (Exp:8/5/2023) :
10/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
0900
How many members in your family?
2
Enter the age of your 2 family member:
20
22
Enter your destination (K/S/T/U): T
Total amount of your tickets is: RM1000.00
Price after discount: RM 950.00
Your tickets have been booked successfully.
The receipt have been sent to your Whatsapp.
-----
WE ARE READY WHEN YOU ARE, HAVE A SAFE RIDE WITH US
-----
Process exited after 78.82 seconds with return value 0
Press any key to continue . . .
```

(Sample 2)

```
C:\Users\sking\Downloads\fl x + v
FLY HIGH AIRLINE
*****
|-----|
|      |
| Ticket booking system      |
| Hari Raya Promotion       |
|      |
|-----|
*****
Destinations
K: Korea
S: Singapore
T: Thailand
U: United Kingdom

Enter your full name:
yaashiny
Passport Number:
5
Phone number (Exp:0102233493):
01111920753
Travel date, d/m/y (Exp:8/5/2023) :
21/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
1030

How many members in your family?
5
```

```
C:\Users\sking\Downloads\fl x + v
5
Phone number (Exp:0102233493):
01111920753
Travel date, d/m/y (Exp:8/5/2023) :
21/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
1030

How many members in your family?
5

Enter the age of your 5 family member:
50
50
25
20
15

Enter your destination (K/S/T/U): S

Total amount for your tickets is: RM 2000.00
Price after discount: RM 1900.00

Your tickets have been booked successfully.
The receipt have been sent to your Whatsapp.

-----
WE ARE READY WHEN YOU ARE, HAVE A SAFE RIDE WITH US
-----

Process exited after 142.8 seconds with return value 0
Press any key to continue . . . |
```

(Sample 3)

```
C:\Users\sking\Downloads\fl x + v
FLY HIGH AIRLINE
*****
Ticket booking system
Hari Raya Promotion
*****
Destinations
K: Korea
S: Singapore
T: Thailand
U: United Kingdom
Enter your full name:
diwesh
Passport Number:
9
Phone number (Exp:0102233493):
01133391592
Travel date, d/m/y (Exp:8/5/2023) :
7/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
0530
How many members in your family?
3
Enter the age of your 3 family member:
```

```
C:\Users\sking\Downloads\fl x + v
Enter your full name:
diwesh
Passport Number:
9
Phone number (Exp:0102233493):
01133391592
Travel date, d/m/y (Exp:8/5/2023) :
7/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
0530
How many members in your family?
3
Enter the age of your 3 family member:
22
20
17
Enter your destination (K/S/T/U): U
Total amount of your tickets is: RM 13500.00
Price after discount: RM 12825.00
Your tickets have been booked successfully.
The receipt have been sent to your Whatsapp.
-----
WE ARE READY WHEN YOU ARE,HAVE A SAFE RIDE WITH US
-----
Process exited after 198.8 seconds with return value 0
Press any key to continue . . . |
```

(Sample 4)

```
C:\Users\sking\Downloads\fl x + v
FLY HIGH AIRLINE
*****
|                                     |
| Ticket booking system              |
| Hari Raya Promotion                |
|                                     |
|-----|
*****
Destinations

K: Korea
S: Singapore
T: Thailand
U: United Kingdom

Enter your full name:
abitha
Passport Number:
14
Phone number (Exp:0102233493):
01155006138
Travel date, d/m/y (Exp:8/5/2023) :
22/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
1200

How many members in your family?
4

Enter the age of your 4 family member:
```

```
C:\Users\sking\Downloads\fl x + v
abitha
Passport Number:
14
Phone number (Exp:0102233493):
01155006138
Travel date, d/m/y (Exp:8/5/2023) :
22/5/2023
Travel time, GMT+ (Exp: 1730 or 0530):
1200

How many members in your family?
4

Enter the age of your 4 family member:
55
35
34
15

Enter your destination (K/S/T/U): K

Total amount of your tickets is: RM 14000.00
Price after discount: RM 13300.00

Your tickets have been booked successfully.
The receipt have been sent to your Whatsapp.

-----
WE ARE READY WHEN YOU ARE,HAVE A SAFE RIDE WITH US
-----
Process exited after 126.9 seconds with return value 0
Press any key to continue . . .
```


Conclusion

The ticket purchasing system built into the program allows users to enter personal information such as their name, passport number, phone number, travel date and time, and the number of family members travelling with them. The algorithm then determines the entire cost of the tickets based on the destination and age of the passengers, applying a 5% reduction to the overall price. To ensure proper data collection, the program has been developed to handle errors and input validation. Overall, this program offers a straightforward and effective way to book airline tickets and might be expanded with additional features to improve the consumer experience. The system will be user-friendly and provide accurate and up-to-date information.