

Foundation of Technical Programming Assignment 1

Teaching Period 3, 2022

Total = 35 marks (10 Marks for the Demonstration)

It is part of the submission requirement that you will have to demonstrate/explain your work to your tutor, if you are absent/unavailable or fail to demonstrate properly, zero marks will be awarded.

Please note, this is an individual task and it will be checked for plagiarism. All the involved parties will be penalised if any plagiarism is found.

Please visit <https://goo.gl/hQ87zq> for more details.

Instructions

1. This assignment contains 4 questions (topics from week 1 to 5).
2. Submit one text document for Question No. 4 and one pdf or word document for Question No 1, 2 & 3.

Use the following format to prepare the text file & pdf document

- Write the Question Numbers.
 - C program (Copy paste your c program into notepad++ document and save it as a **assign1.txt** file)
 - Insert your flowchart diagrams into word document and save it as **assign1.doc** or **assign1.pdf**
 - Screenshot of the output are not necessary.
3. Use only .txt extensions – only for Question No 4, no other format will be accepted for marking.
 4. If you are failing to come for the demonstration, you will get zero marks for the Assignment demonstration section.
 5. Marks will be given for proper indentation and comments.
 6. Due date is **27th November 2022**.

Question 1. [5 Marks]

Draw a flow chart showing the following process.

Auditor Forum has launched a promotion for its credit card customers. According to the promotion, the customers will receive a gift voucher worth \$500 with their monthly bill if they spend \$15,000 more than their last month spending and their last month bill is not less than \$10,000.

Question 2. [5 Marks]

Draw a flowchart containing a while loop that given N calculate:

$$sum = 1 + \frac{1}{2} + \frac{1}{3} \dots + \frac{1}{N}$$

Question 3. [5 Marks]

Draw a flowchart that reads the file and then calculates and prints the number of students that scored HD, D, C, P, and F.

Grade Ranges:

HD: 80 -100
 D: 70 - 79
 C: 60 - 69
 P: 50 - 59
 F: 0 - 49

Question 4. [10 Marks]**Train Ticket Reservation System**

Using the C programming language, write a program to imitate the train ticket reservation system.

The system will be used by the Ticketing Officer, who will login to the system at 9:00 am and logout at 5:00 pm. Patrons will approach the ticketing officer to check availability and to book tickets.

The details of the train:

Class	Capacity	Ticket Price – Above 12 years	Special rates
A	30 seats	15\$	10\$ - Seniors & Children below 12 years

B	60 seats	10\$	5\$ - Seniors & Children below 12 years
C	90 seats	5\$	3\$ - Seniors & Children below 12 years
Note: Free ride for children under 3 years.			

Your program should be menu-driven as shown below:

Initial Screen

```
1 - Class A
2 - Class B
3 - Class C
4 - Current Availability
5 - Exit
Enter your option...
```

When option 1/2/3 is selected

```
How many full tickets ...
10
How many concession tickets - Senior and children under 12 and above 3 ...
2
How may kids under 3 years...
3
```

Next Screen

```
How many full tickets ...
10
How many concession tickets - Senior and children under 12 and above 3 ...
2
How may kids under 3 years...
3
Your total tickets price = 280.00

1 - Class A
2 - Class B
3 - Class C
4 - Current Availability
5 - Exit Enter your option...
```

When option 4 is selected

```
Total available
Class A is 15
Class B is 60
Class C is 90

1 - Class A
2 - Class B
3 - Class C
4 - Current Availability
5 - Exit Enter your option...
```

If you try to buy more tickets than available

```
How many full tickets ...
12
How many concession tickets - Senior and children under 12 and above 3 ...
12
How may kids under 3 years...
12

Less tickets available than required ...
Total available in Class A is 15
Class B is 60
Class C is 90

1 - Class A
2 - Class B
3 - Class C
4 - Current Availability
5 - Exit Enter your option...
```

When option 5 is selected

```
Total available
Class A is 15
Class B is 60
Class C is 90
```

and the program stops

Note:

Only one class (A/B/C) tickets can be purchased in a single transaction.

The system is to reset all records each morning.

No need to store amount collected in the system.