



University of Vavuniya

First Examination in Information Technology - 2020

First Semester – April/May 2022

IT1134 Fundamentals of Programming(Practical)

Answer All Questions

Time Allowed : Three hours

1. Write a program in C++ to repeatedly prompt the user to enter a number and find the average of positive numbers entered by the user. Prompt must end and display the average only when the entered number is negative.

Sample Output:

Enter number1:24

Enter number2:45

Enter number3:56

Enter number4:34

Enter number5:87

Enter number6:-5

Average of positive numbers you have entered is: 49.2

[20%]

2. Write a program in C++ with the following guidelines:
 - (a) Define the void type function `findSum(int array [], int sizeofArray, int &sum)` to find the summation of an integer array.
 - (b) Define the void type function `findAverage(int array [], int sizeofArray, int &average)` to find the average of an integer array.
 - (c) Define the void type function `findMin(int array [], int sizeofArray, int &minimum)` to find the minimum of an integer array.
 - (d) Define the void type function `findMax(int array [], int sizeofArray, int &maximum)` to find the maximum of an integer array.

(e) At the `main()` function,

- read the size and the elements of an integer array.
- find the summation, average, minimum, and maximum of the array using the functions defined above.

Sample Output:

Enter the size of the array:5

Enter number1:15.6

Enter number2:17.3

Enter number3:13.9

Enter number4:29.5

Enter number5:33.6

Summation of the array:109.9

Average of the array:21.98

Minimum of the array:13.9

Maximum of the array:33.6

[30%]

3. Write a program in C++ with the following guidelines:

(a) Define a struct **Author** with the following properties:

- three variables *name* (string), *mail* (string) and *gender* (char).
- a function *readAuthor()* to read the details of Author.
- a function *printAuthor()* to display the details of Author.

(b) Define a struct **Book** with the following properties:

- three variables *title*(string), *pages*(int) and *price*(float).
- a struct *author*(**Author**).
- a function *readBook()* to read the details of Book and Author.
- a function *printBook()* to display the details of Book and Author.

(c) Define the *main()* function to do the followings:

- Read details of the following books.

Title	No of Pages	Price	Author's name	Mail	Gender
Java	300	400	David	david@books.com	M
C++	450	500	James	james@books.com	M
C#	600	800	Malini	malini@books.com	F
PHP	700	900	Amalka	amalka@books.com	F
JavaScript	200	300	David	david@books.com	M

- ii. Print details of the books.
- iii. Print details of the books with the following conditions:
 - A. the books which price is greater than 500.
 - B. the books which number of pages are less than 500.
 - C. the books which are written by David.
 - D. the books which are written by female authors.

Sample Output:

```
Enter number of books:5
Enter title:Java
Enter number of pages:300
Enter price:400
Enter author's name:David
Enter author's mail:david@books.com
Enter author's gender:M
Enter title:C++
Enter number of pages:450
Enter price:500
Enter author's name:James
Enter author's mail:james@books.com
Enter author's gender:M
Enter title:C#
Enter number of pages:600
Enter price:800
Enter author's name:Malini
Enter author's mail:malini@books.com
Enter author's gender:F
Enter title:PHP
Enter number of pages:700
Enter price:900
Enter author's name:Amalka
Enter author's mail:amalka@books.com
Enter author's gender:F
Enter title:JavaScript
Enter number of pages:200
Enter price:300
Enter author's name:David
Enter author's mail:david@books.com
Enter author's gender:M
```


The details of books:

Book Title:Java

No of pages:300

Price:400

Author's name:David

Author's mail:david@books.com

Author's gender:M

Book Title:C++

No of pages:450

Price:500

Author's name:James

Author's mail:james@books.com

Author's gender:M

Book Title:C#

No of pages:600

Price:800

Author's name:Malini

Author's mail:malini@books.com

Author's gender:F

Book Title:PHP

No of pages:700

Price:900

Author's name:Amalka

Author's mail:amalka@books.com

Author's gender:F

Book Title:JavaScript

No of pages:200

Price:300

Author's name:David

Author's mail:david@books.com

Author's gender:M

The details of books which price is greater than 500:

Book Title:C#

No of pages:600

Price:800