Bachelor of Information Technology (Hons)
Assignment Cover Sheet

CourseCodeEC3105 Course Title:C-Programming
AssignmentTitle: Assignment 2 Due Date:May 26
Date Submitted: May 26 Lecturer Name: Aashish Acharya

To be completed if this is an individual assignment

I declare that this assignment is my individual work. I have not worked collaboratively nor have I copied from any other student's work or from any other source except where due acknowledgement is made explicitly in the text, nor has any part been written for me by another person.

StudentName:Kishor Chaudhary Student ID:_____

Signature:kishor

To be completed if this is a group assignment

We declare that this is a group assignment and that no part of this submission has been copied from any other student's work or from any other source except where due acknowledgement is made explicitly in the text, nor has any part been written for us by another person.

Student ID	Student Name	Signature
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Lecturer's comments: _____

_____

Total Marks: _____ Lecturer's Signature:_____

Feedback to Student:

I/We acknowledged receiving feedback from the lecturer on this assignment.

Student's Signature: _____ _____ _____ _____

Extension certification:

This assignment has been given an extension and is now due on _____.

Lecturer's Signature: _____

Contents

Write a program to read the IDs and their final exam total of 10 students and perform the following operations on data:

- Show the top three scorers of the batch.
- Sort the data on descending order of total marks.
- Calculate the average marks of the batch.
- Find all students scoring above 70% (full marks is 500) and print them.

Please keep note of the following details while building the solution:

1. You are not allowed to make use of Global Variables, use local variables and pass them as parameters/values/references if you need to use them across functions.
2. Your system should show choices after user inputs two matrices, choices to to perform each of the following operations.
3. Your program should continuously run until user prompts to quit. Input and result of each calculation should be stored in a file. You are required to a create file record for each session. It is not mandatory to keep records of old sessions.

Algorithm

Step1:Start
Step2:Declare the following variables with the following purposes:

Id:to store student id
S0:to store marks of student id1
S1:to store marks of student id 2
S2: to store marks of student id1
S3 :to store marks of student id4
S4:to store marks of student id5
S5:to store marks of student id6
S6:to store marks of student id7
S7: to store marks of student id8
S8 :to store marks of student id9
S9:to store marks of student id10
Sum:to store sum of marks of students
Num:to store number from user
Num1:to store temporary number
Total:to store sum of marks of all students
First:to store 1st scorer
Second :to store 2nd scorer
Third:to store 3rd scorer
Average:to store average marks of the batch

Step 3:Repeat the following process until the i value is <10 otherwise go to step4
i=0
Read the ids of students
i++
goto step 3

step4: Repeat the following process until the i value is <5 otherwise go to step5
i=0
Read the marks student1
i++
goto step 4

Step5: Repeat the following process until the i value is <5 otherwise go to step6
i=0
Read the marks of student2
i++
goto step 5

step6:Repeat the following process until the i value is <5 otherwise go to step7
i=0
Read the marks of student3
i++
goto step 6

Step7:Repeat the following process until the i value is <5 otherwise go to step8
i=0
Read the marks of student4
i++
goto step 7

Step8:Repeat the following process until the i value is <5 otherwise go to step9

i=0
Read the marks of student5
i++
goto step 8
Step9:Repeat the following process until the i value is <5 otherwise go to step10
i=0
Read the marks of student6
i++
goto step 9
Step10:Repeat the following process until the i value is <5 otherwise go to step11
i=0
Read the marks of student7
i++
goto step 10
Step11:Repeat the following process until the i value is <5 otherwise go to step12
i=0
Read the marks of student8
i++
goto step 11
Step12:Repeat the following process until the i value is <5 otherwise go to step13
i=0
Read the marks of student9
i++
goto step 12
Step13:Repeat the following process until the i value is <5 otherwise go to step14
i=0
Read the marks of student10
i++
goto step 13
Step14:sum[0]=s0[0]+s0[1]+s0[2]+s0[3]+s0[4]
sum[1]=s1[0]+s1[1]+s1[2]+s1[3]+s1[4]
sum[2]=s2[0]+s2[1]+s2[2]+s2[3]+s2[4]
sum[3]=s3[0]+s3[1]+s3[2]+s3[3]+s3[4]
sum[4]=s4[0]+s4[1]+s4[2]+s4[3]+s4[4]
sum[5]=s5[0]+s5[1]+s5[2]+s5[3]+s5[4]
sum[6]=s6[0]+s6[1]+s6[2]+s6[3]+s6[4]
sum[7]=s7[0]+s7[1]+s7[2]+s7[3]+s7[4]
sum[8]=s8[0]+s8[1]+s8[2]+s8[3]+s8[4]
sum[9]=s9[0]+s9[1]+s9[2]+s9[3]+s9[4]
Step15:Repeat the folllowing process until the value is 5 other wise go to step
print"What operation do you need to do of the data enter the number accordingly as mentioned below"
print"To find top three scorers of the batch enter 1."
print"To sort the data on descending order of total marks enter 2"
print"To find the average marks of the batch enter 3."
print"To find all students scoring above 70 percent enter 4"
print"Enter 5 to quit"
Step16:Read a number and store it in num.
Step17:if (num==1)
Repeat the following process until the value becomes 10 otherwise go to step15
i=0
if (sum[i]>first) then

third=second
second=first
first=sum[i]
print"the first highest number "
else if(sum[i]>second)
second=sum[i]
print"the second highest number"
else(sum[i]>third)
third=sum[i]
print"the third highest number"
i++
go to step17

Step18:else if (num==2)
Repeat the following process until i becomes 10 otherwise go to step21
i=10

Step19 :Repeat the following process until j becomes 10 otherwise go to step20
j=i+1
if (sum[i]<sum[j])
num1=sum[i]
sum[i]=sum[j]
sum[j]=num1
j++
go to step19

Step20 :i++
go to step18

Step21:Repeat the following process until the value become10 otherswise go to step15
i=0
print the marks in decending order
i++
go to step21

step22:else if (num==3)
total=sum[0]+sum[1]+sum[2]+sum[3]+sum[4]+sum[5]+sum[6]+sum[7]+
sum[8]+sum[9]
Average=total/10;

Step23:print "The average marks obtaied by the batch"

Step24:go to step15

Step25:else if (num==4)

Step 26:Repeat the following process until the I become 9 otherwise go to step15
I=0
If (sum[i]>350)
Print"the id with the marks"
i++
go to step26

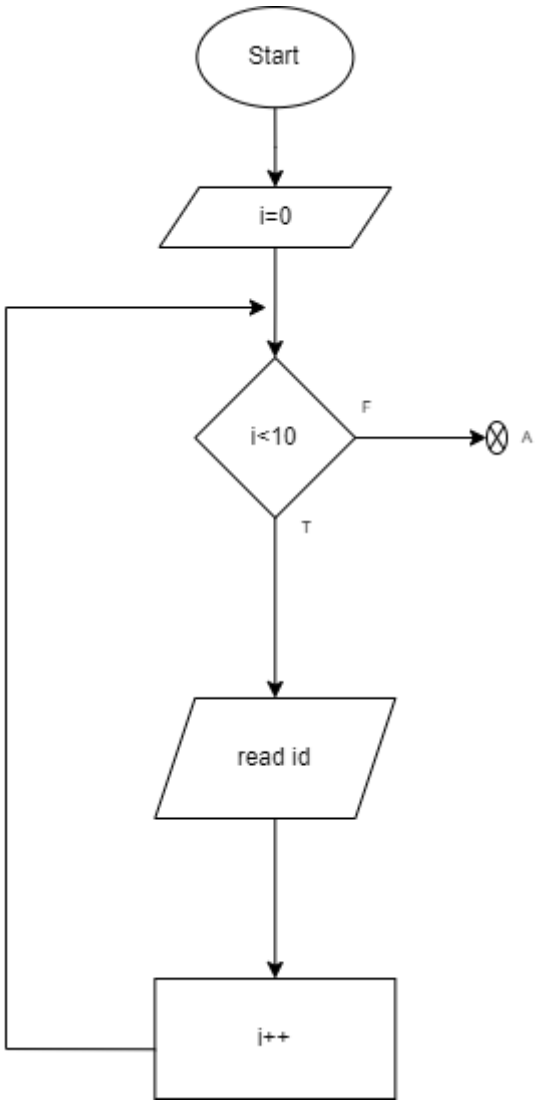
Step27:else if
Print"Invalid input"
Go to step 15

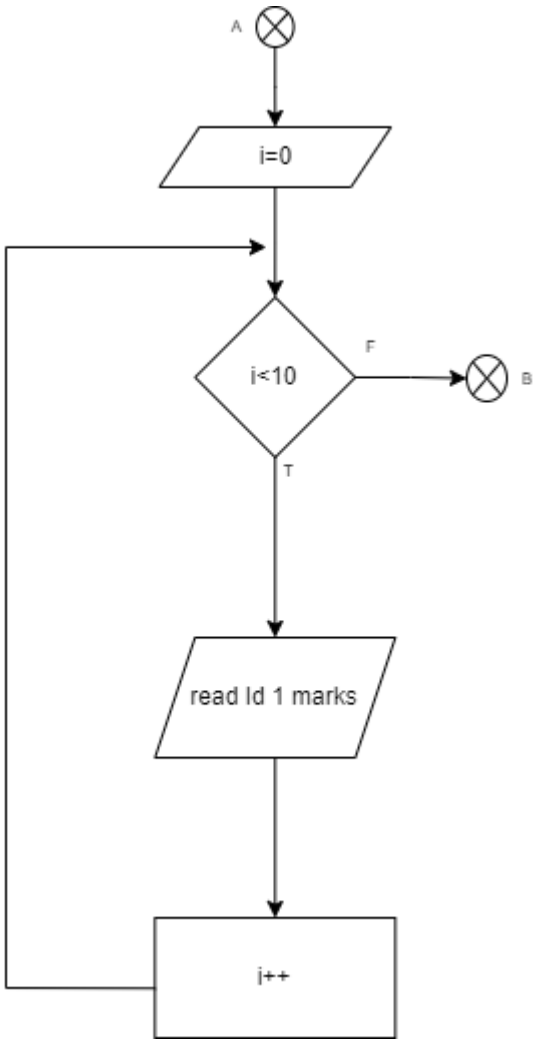
Step28:else (num==5)

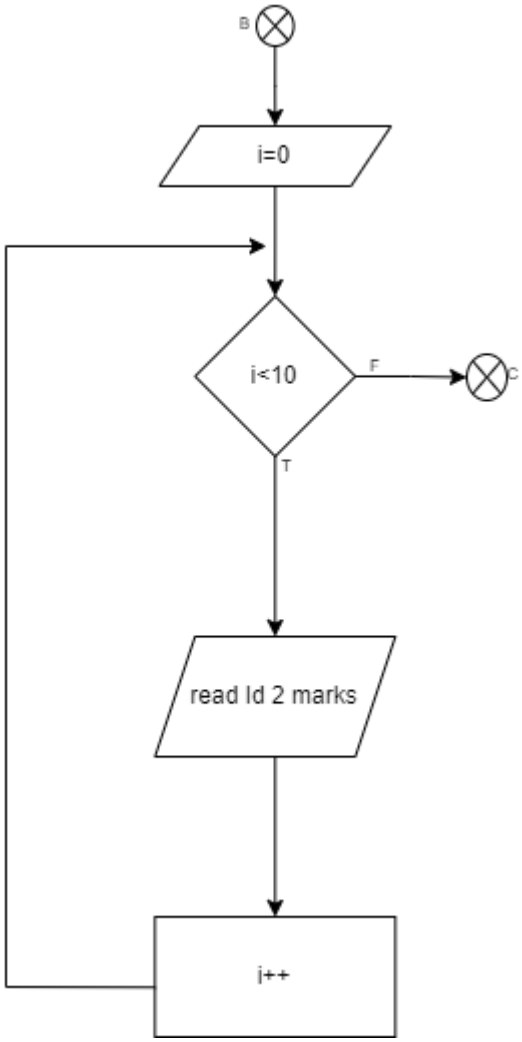
Step30:Got to step 31

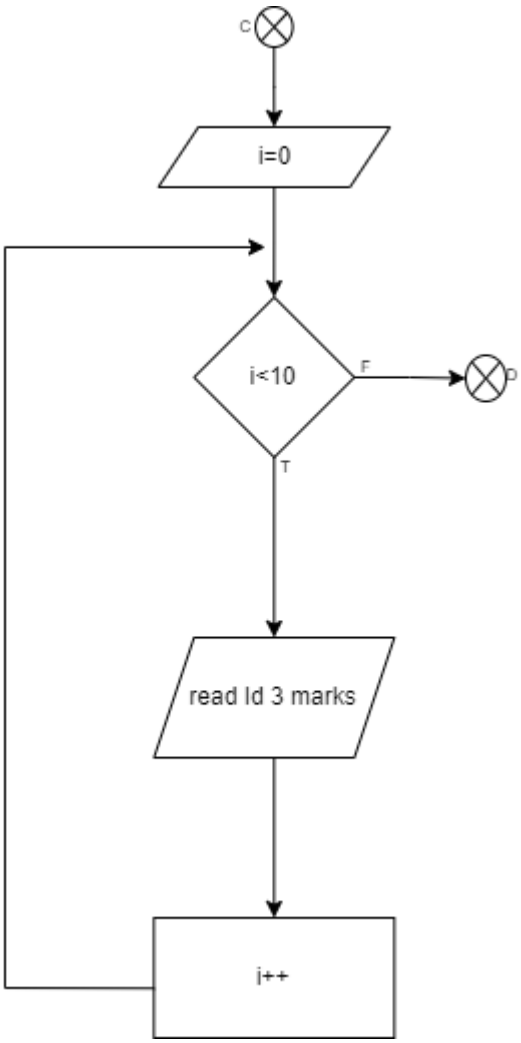
Step31:Stop

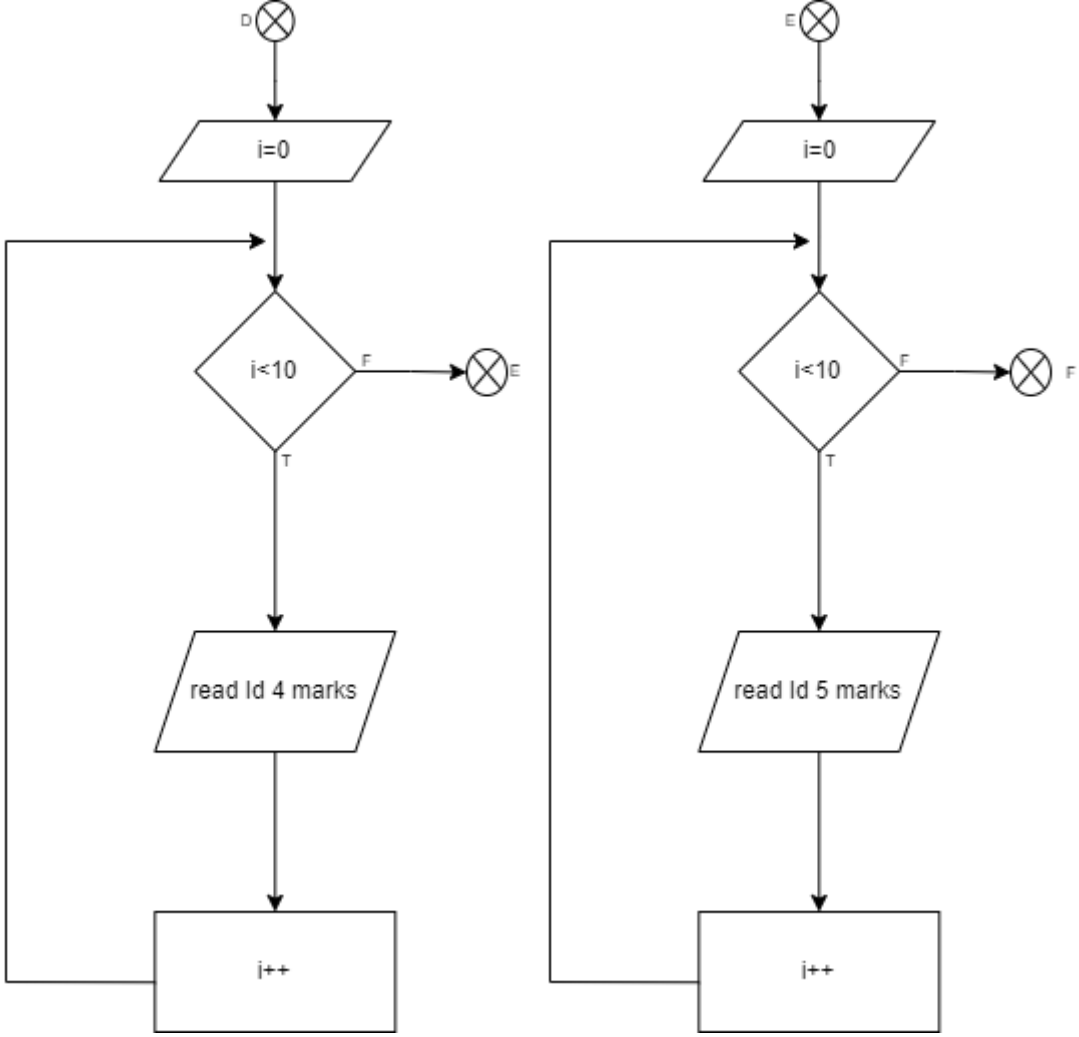
Flowchart

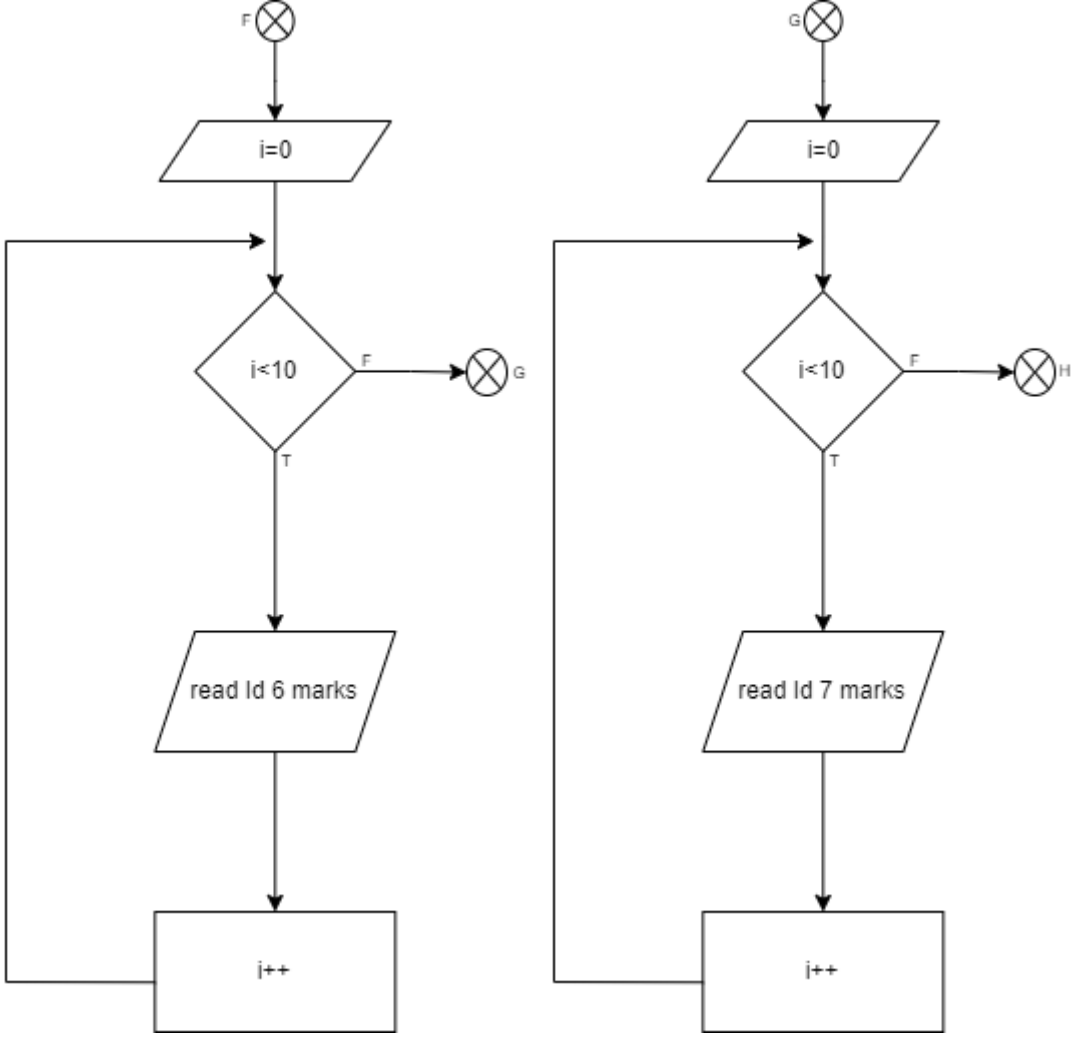


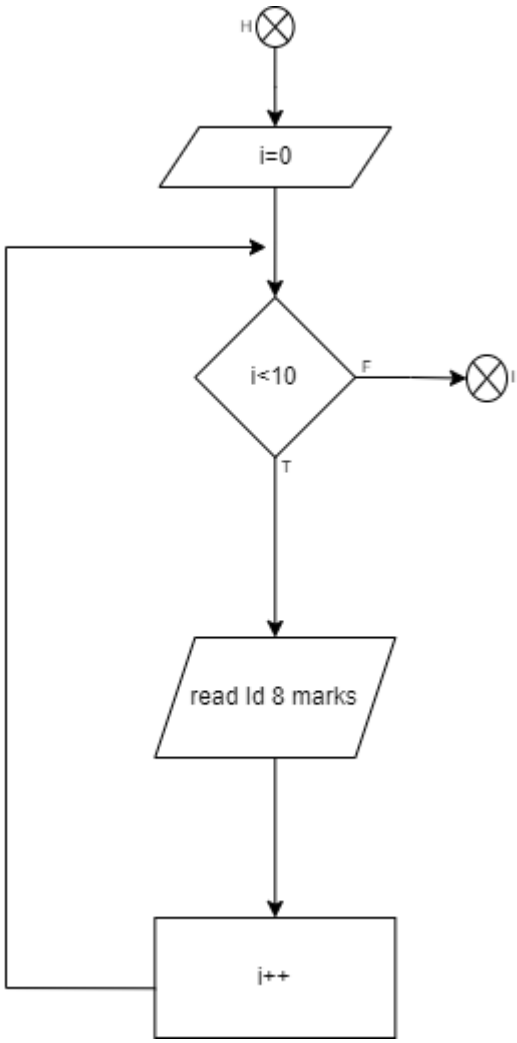


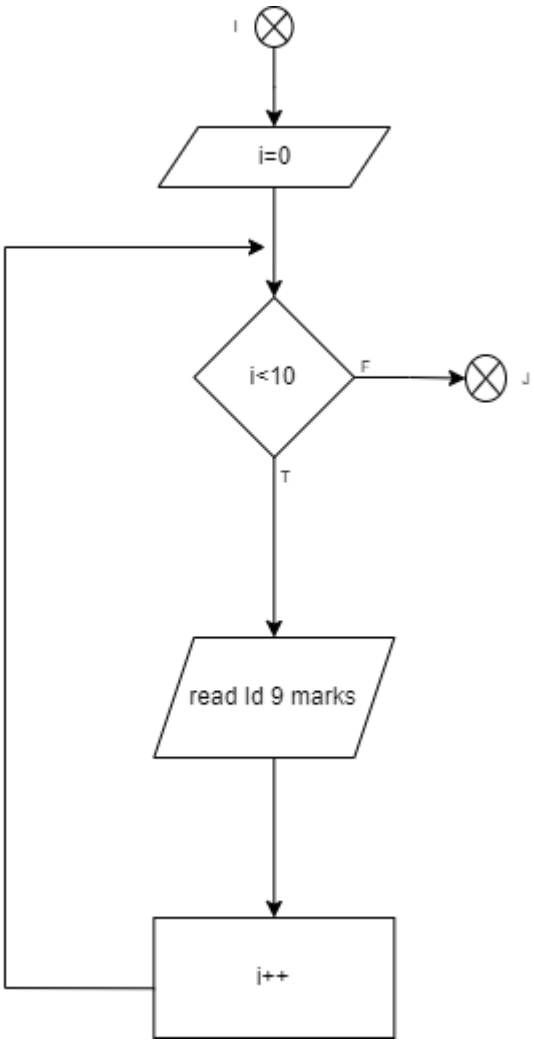

B
i=0
i<10
F
C
T
read Id 2 marks
i++

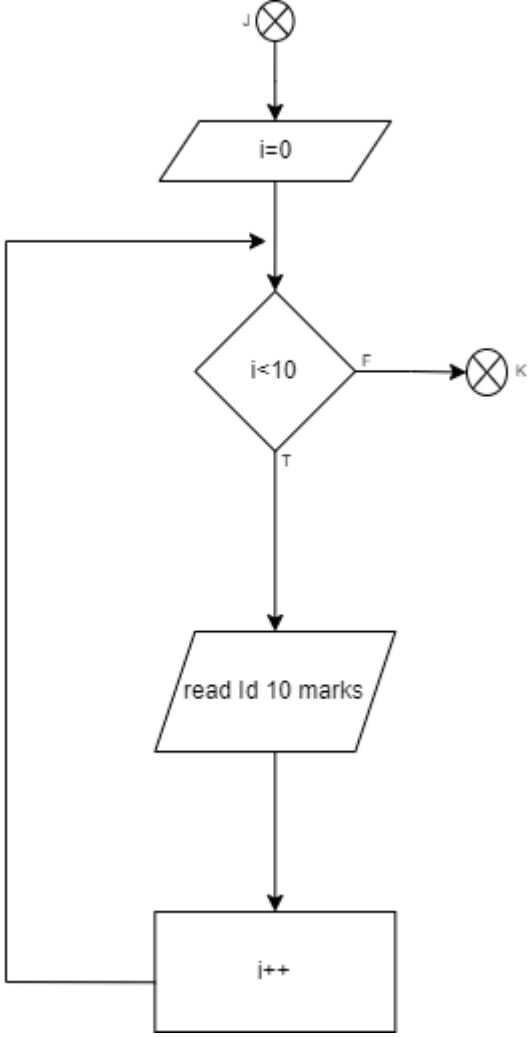

C
i=0
i<10
F
D
T
read Id 3 marks
i++

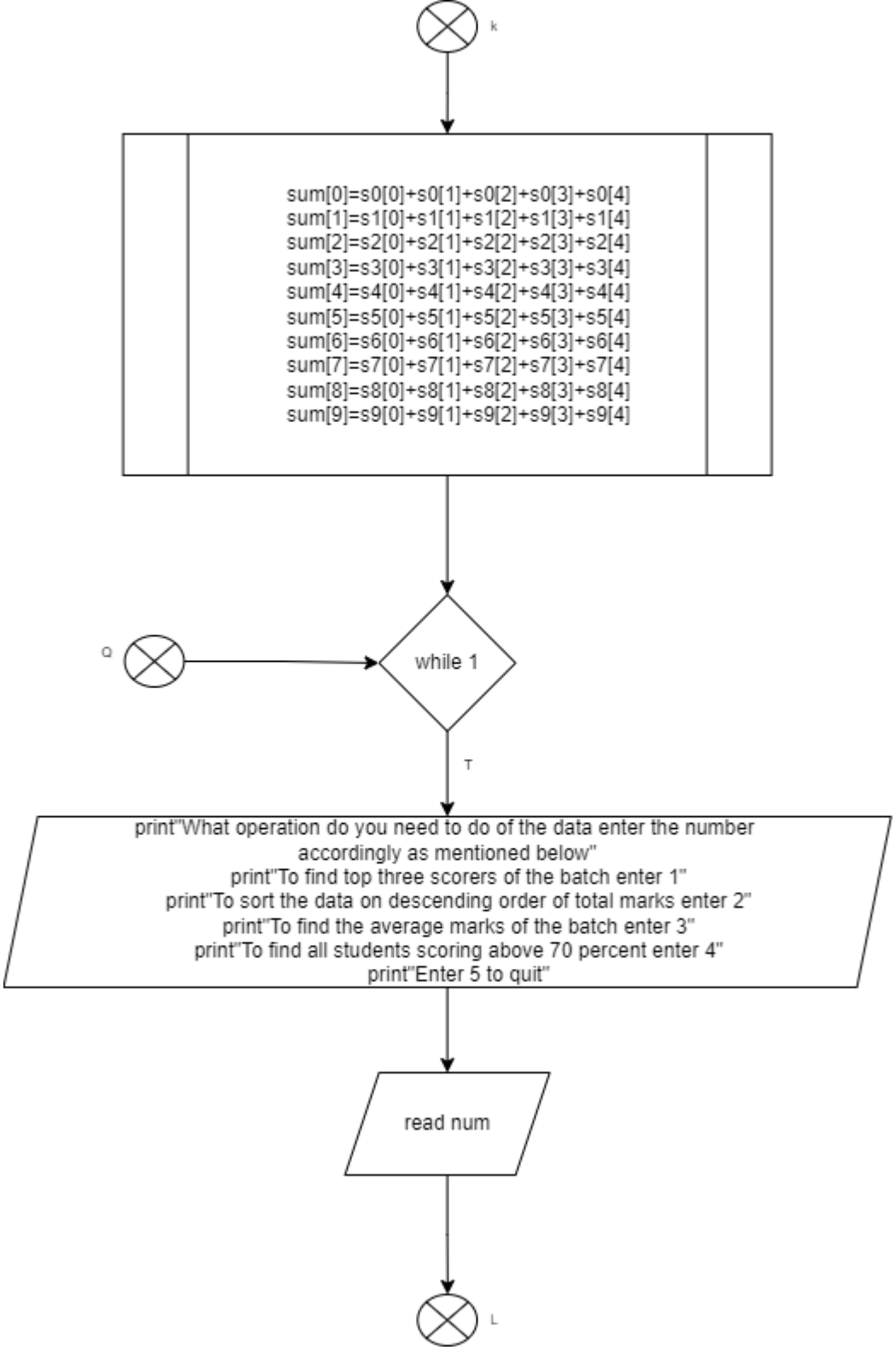

D
i=0
i<10
F
E
T
read Id 4 marks
i++
E
i=0
i<10
F
F
T
read Id 5 marks
i++

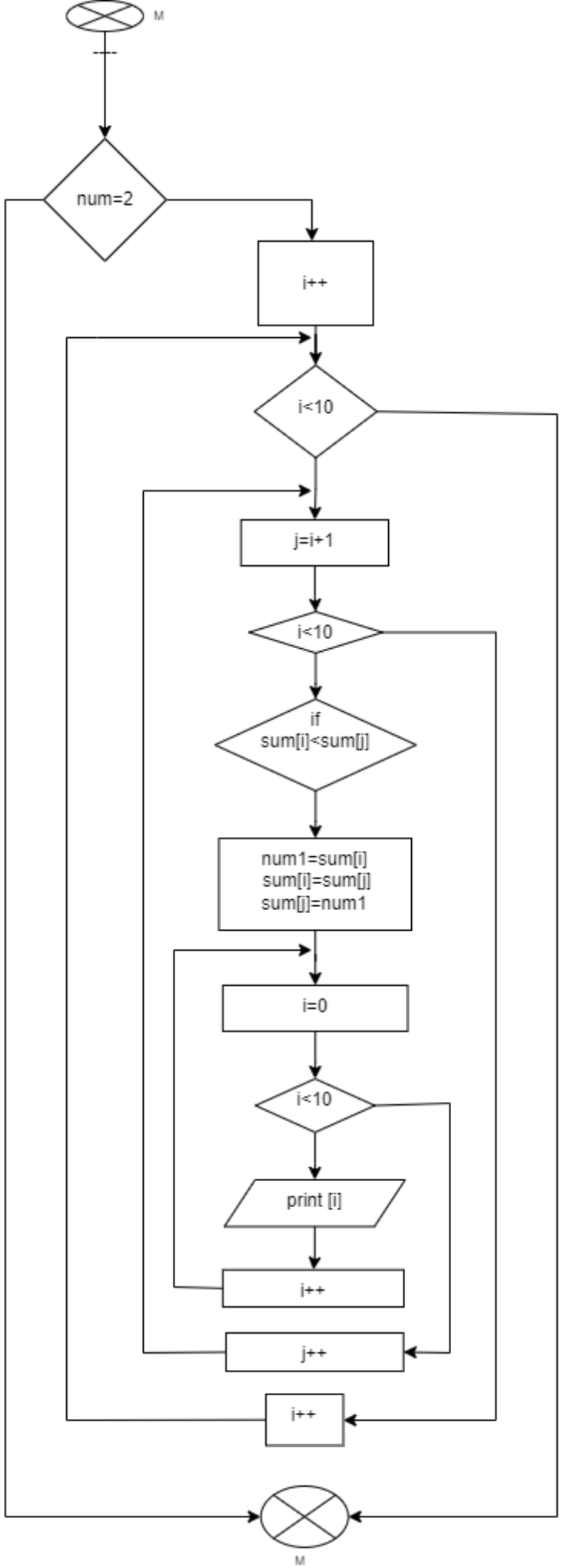

F
i=0
i<10
F
G
T
read Id 6 marks
i++
G
i=0
i<10
F
H
T
read Id 7 marks
i++

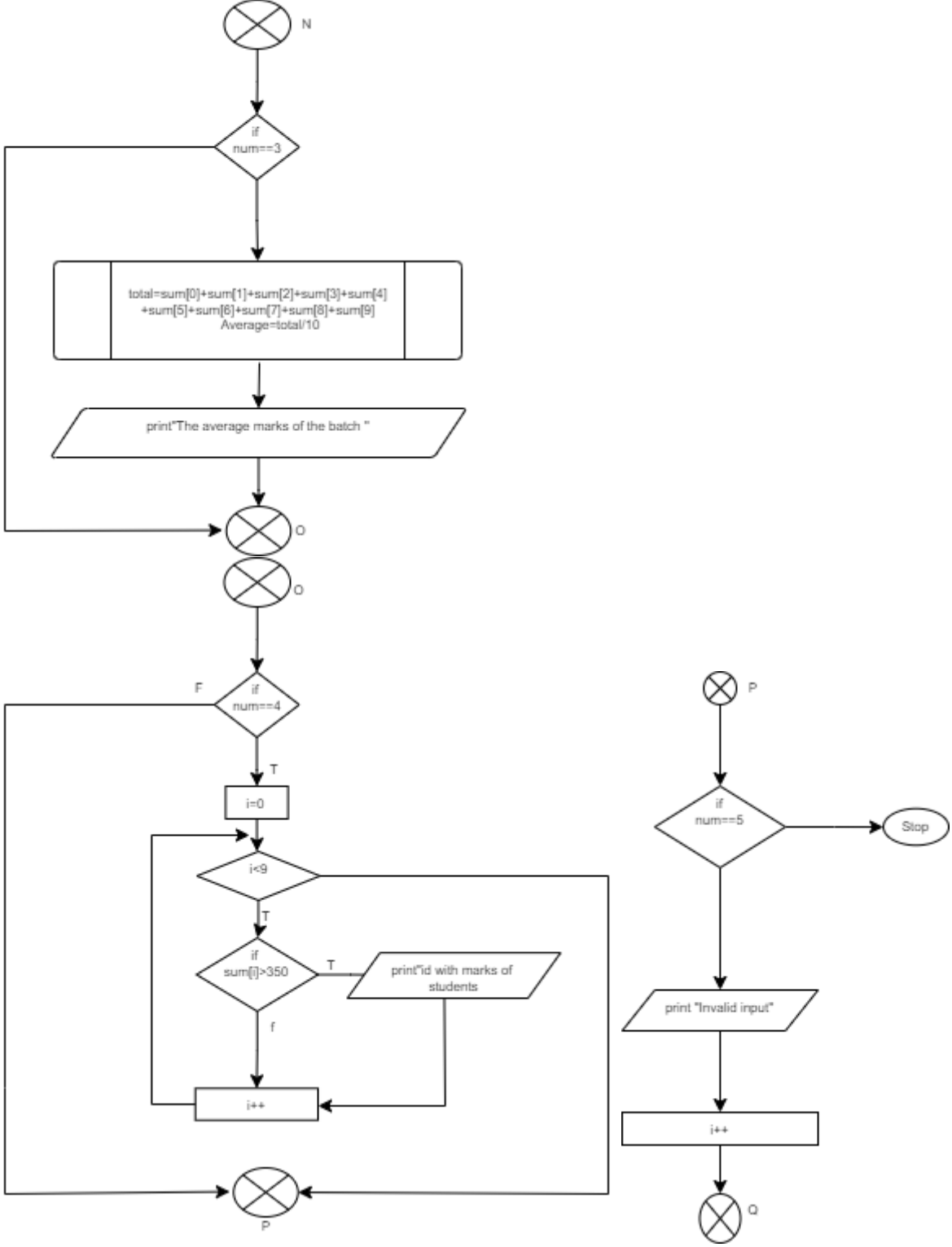

H
i=0
i<10
F
I
T
read Id 8 marks
i++


I
i=0
i<10
F
J
T
read Id 9 marks
i++


J
i=0
i<10
F
K
T
read Id 10 marks
i++


k
sum[0]=s0[0]+s0[1]+s0[2]+s0[3]+s0[4]
sum[1]=s1[0]+s1[1]+s1[2]+s1[3]+s1[4]
sum[2]=s2[0]+s2[1]+s2[2]+s2[3]+s2[4]
sum[3]=s3[0]+s3[1]+s3[2]+s3[3]+s3[4]
sum[4]=s4[0]+s4[1]+s4[2]+s4[3]+s4[4]
sum[5]=s5[0]+s5[1]+s5[2]+s5[3]+s5[4]
sum[6]=s6[0]+s6[1]+s6[2]+s6[3]+s6[4]
sum[7]=s7[0]+s7[1]+s7[2]+s7[3]+s7[4]
sum[8]=s8[0]+s8[1]+s8[2]+s8[3]+s8[4]
sum[9]=s9[0]+s9[1]+s9[2]+s9[3]+s9[4]
Q
while 1
T
print"What operation do you need to do of the data enter the number
accordingly as mentioned below"
print"To find top three scorers of the batch enter 1"
print"To sort the data on descending order of total marks enter 2"
print"To find the average marks of the batch enter 3"
print"To find all students scoring above 70 percent enter 4"
print"Enter 5 to quit"
read num
L


M
num=2
i++
i<10
j=i+1
i<10
if
sum[i]<sum[j]
num1=sum[i]
sum[i]=sum[j]
sum[j]=num1
i=0
i<10
print [i]
i++
j++
i++
M


N
if num==3
total=sum[0]+sum[1]+sum[2]+sum[3]+sum[4]
+sum[5]+sum[6]+sum[7]+sum[8]+sum[9]
Average=total/10
print"The average marks of the batch "
O
O
F
if num==4
T
i=0
i<9
T
if sum[i]>350
T
print"id with marks of students
f
i++
P
P
if num==5
Stop
print "Invalid input"
i++
Q

Source Code

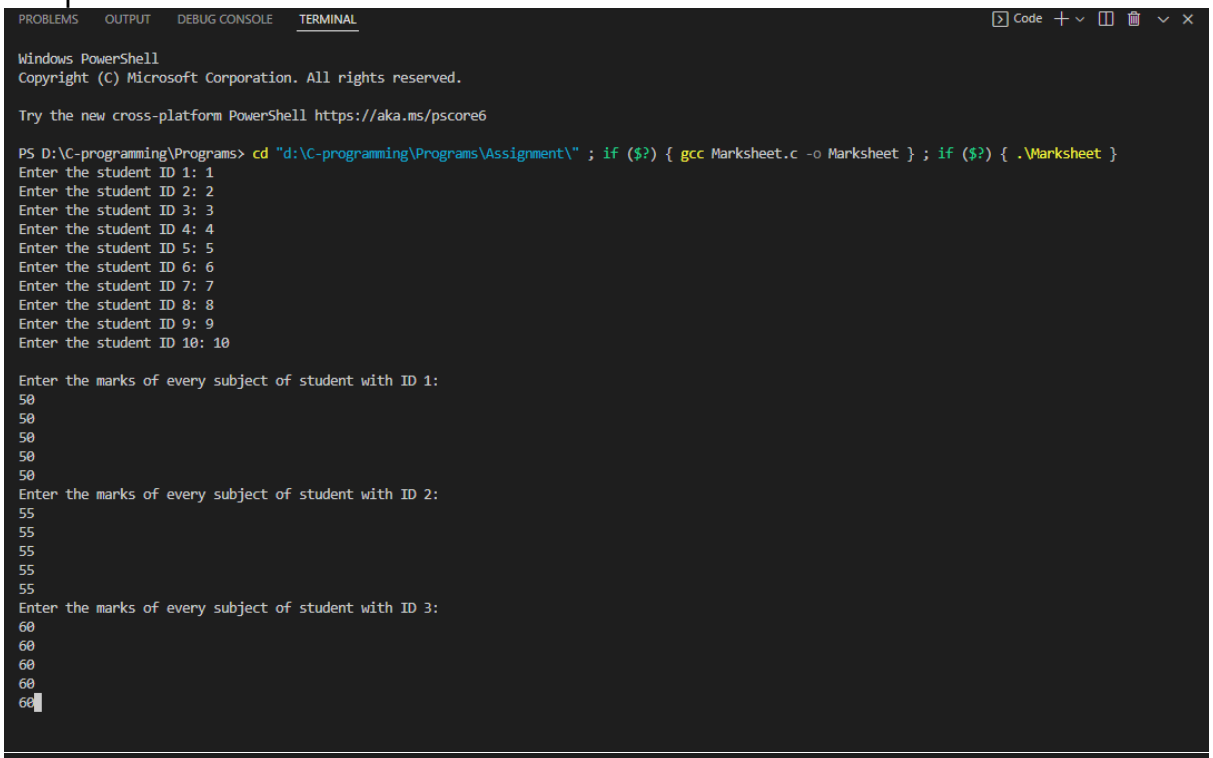
```
#include <stdio.h>
int FinalMark();

int main()
{
  FinalMark();
  printf("\n");

}
int FinalMark()
{
  int Id[10],i,s0[5],s1[5],s2[5],s3[5],s4[5],s5[5],s6[5],s7[5],s8[5],s9[5];

  for(i=0;i<10;i++)
  {
    printf("Enter the student ID %d: ",i+1);
    scanf("%d",&Id[i]);
  }
  printf("\n");
  printf("Enter the marks of every subject of student with ID %d:\n",Id[0]);
  for(i=0;i<5;i++)
  {
    scanf("%d",&s0[i]);
  }
  printf("Enter the marks of every subject of student with ID %d:\n",Id[1]);
  for(i=0;i<5;i++)
  {
    scanf("%d",&s1[i]);
  }
  printf("Enter the marks of every subject of student with ID %d:\n",Id[2]);
  for(i=0;i<5;i++)
  {
    scanf("%d",&s2[i]);
  }
  printf("Enter the marks of every subject of student with ID %d:\n",Id[3]);
  for(i=0;i<5;i++)
  {
    scanf("%d",&s3[i]);
  }
  }
  printf("Enter the marks of every subject of student with ID %d:\n",Id[4]);
  for(i=0;i<5;i++)
  {
    scanf("%d",&s4[i]);
  }
  printf("Enter the marks of every subject of student with ID %d:\n",Id[5]);
  for(i=0;i<5;i++)
  {
    scanf("%d",&s5[i]);
```

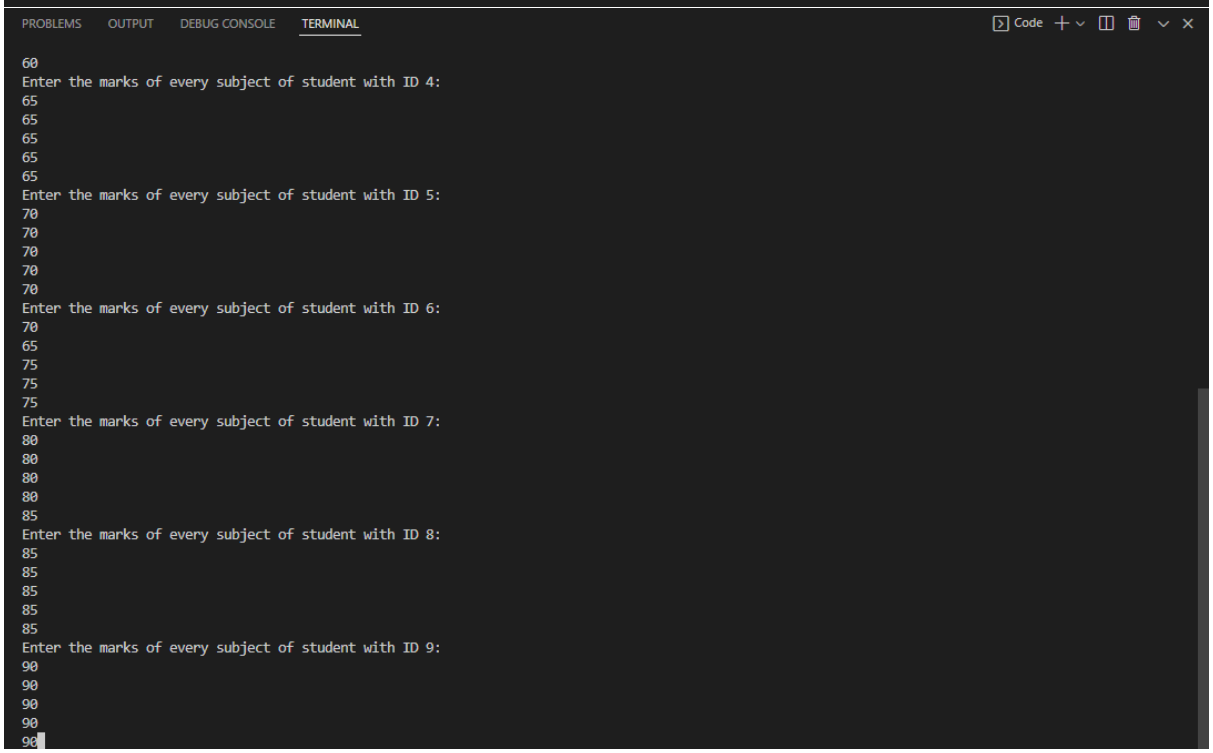
```
}
printf("Enter the marks of every subject of student with ID %d:\n",Id[6]);
for(i=0;i<5;i++)
{
  scanf("%d",&s6[i]);
}
printf("Enter the marks of every subject of student with ID %d:\n",Id[7]);
for(i=0;i<5;i++)
{
  scanf("%d",&s7[i]);
}
printf("Enter the marks of every subject of student with ID %d:\n",Id[8]);
for(i=0;i<5;i++)
{
  scanf("%d",&s8[i]);
}
printf("Enter the marks of every subject of student with ID %d:\n",Id[9]);
for(i=0;i<5;i++)
{
  scanf("%d",&s9[i]);
}
int num,sum[10],num1,total=0,first=0,second=0,third=0;


sum[0]=s0[0]+s0[1]+s0[2]+s0[3]+s0[4];
sum[1]=s1[0]+s1[1]+s1[2]+s1[3]+s1[4];
sum[2]=s2[0]+s2[1]+s2[2]+s2[3]+s2[4];
sum[3]=s3[0]+s3[1]+s3[2]+s3[3]+s3[4];
sum[4]=s4[0]+s4[1]+s4[2]+s4[3]+s4[4];
sum[5]=s5[0]+s5[1]+s5[2]+s5[3]+s5[4];
sum[6]=s6[0]+s6[1]+s6[2]+s6[3]+s6[4];
sum[7]=s7[0]+s7[1]+s7[2]+s7[3]+s7[4];
sum[8]=s8[0]+s8[1]+s8[2]+s8[3]+s8[4];
sum[9]=s9[0]+s9[1]+s9[2]+s9[3]+s9[4];


while(1)
{
printf("What operation do you need to do of the data enter the number accordingly as
mentioned below:\n");
printf("To find top three scorers of the batch enter 1.\n");
printf("To sort the data on descending order of total marks enter 2.\n");
printf("To find the average marks of the batch enter 3.\n");
printf("To find all students scoring above 70 percent enter 4.\n");
printf("Enter 5 to quit\n");

scanf("%d",&num);

if (num==1)
{
   for(int i=0;i<10;i++)
   {
```

```
        if(sum[i]>first)
          {
            third=second;
            second=first;
            first=sum[i];

          }
        else if(sum[i]>second)
        {
          second=sum[i];
        }
        else if(sum[i]>third)
        {
          third=sum[i];
        }
  }
  printf("first highest marks of student of id %d is %d \n",Id[i],first);
  printf("second highest marks of student of id %d is %d \n",Id[i],second);
  printf("third highest marks of student of id %d is %d \n",Id[i],third);
  }

  else if (num==2)
  {
  for(i=0;i<10;i++)
  {
    for(int j=i+1;j<10;j++)
    {
      if(sum[i]<sum[j])
      {
        num1=sum[i];
        sum[i]=sum[j];
        sum[j]=num1;
      }

    }
  }
    printf("The sorted the data on descending order of total marks are:\n" );
    for (i=0;i<10;i++)
     {
       printf("%d ",sum[i]);
     }
  }

  else if (num==3)
  {

total=sum[0]+sum[1]+sum[2]+sum[3]+sum[4]+sum[5]+sum[6]+sum[7]+sum[8]+sum[9];
    float Average=(float)total/10;
    printf("The average marks of the batch is %f\n",Average);
  }

  else if (num==4)
```

```
    {
      printf("Students scoring above 70 percent are:\n");
      for(i=0;i<9;i++)
      {
         if (sum[i]>350)
            printf("Id %d with total marks %d\n",Id[i],sum[i]);
      }
    }
    else if (num==5)
    {
      break;
    }
    else
    {
     printf("Invalid Input\n");
    }
    printf("\n");
    i++;
    }
    printf("\n");
    return 0 ;
}
```

Output


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
Code
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Try the new cross-platform PowerShell https://aka.ms/pscore6
PS D:\C-programming\Programs> cd "d:\C-programming\Programs\Assignment\" ; if ($?) { gcc Marksheet.c -o Marksheet } ; if ($?) { .\Marksheet }
Enter the student ID 1: 1
Enter the student ID 2: 2
Enter the student ID 3: 3
Enter the student ID 4: 4
Enter the student ID 5: 5
Enter the student ID 6: 6
Enter the student ID 7: 7
Enter the student ID 8: 8
Enter the student ID 9: 9
Enter the student ID 10: 10
Enter the marks of every subject of student with ID 1:
50
50
50
50
50
Enter the marks of every subject of student with ID 2:
55
55
55
55
55
Enter the marks of every subject of student with ID 3:
60
60
60
60
60


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
Code
60
Enter the marks of every subject of student with ID 4:
65
65
65
65
65
Enter the marks of every subject of student with ID 5:
70
70
70
70
70
Enter the marks of every subject of student with ID 6:
70
65
75
75
75
Enter the marks of every subject of student with ID 7:
80
80
80
80
85
Enter the marks of every subject of student with ID 8:
85
85
85
85
85
Enter the marks of every subject of student with ID 9:
90
90
90
90
90

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL                                Code

95
What operation do you need to do of the data enter the number accordingly as mentioned below:
To find top three scorers of the batch enter 1.
To sort the data on descending order of total marks enter 2.
To find the average marks of the batch enter 3.
To find all students scoring above 70 percent enter 4.
Enter 5 to quit
1
first highest marks of student of id 6 is 475
second highest marks of student of id 6 is 450
third highest marks of student of id 6 is 425

What operation do you need to do of the data enter the number accordingly as mentioned below:
To find top three scorers of the batch enter 1.
To sort the data on descending order of total marks enter 2.
To find the average marks of the batch enter 3.
To find all students scoring above 70 percent enter 4.
Enter 5 to quit
2
The sorted the data on descending order of total marks are:
475 450 425 405 360 350 325 300 275 250
What operation do you need to do of the data enter the number accordingly as mentioned below:
To find top three scorers of the batch enter 1.
To sort the data on descending order of total marks enter 2.
To find the average marks of the batch enter 3.
To find all students scoring above 70 percent enter 4.
Enter 5 to quit
3
The average marks of the batch is 361.500000

What operation do you need to do of the data enter the number accordingly as mentioned below:
To find top three scorers of the batch enter 1.
To sort the data on descending order of total marks enter 2.
To find the average marks of the batch enter 3.
To find all students scoring above 70 percent enter 4.
Enter 5 to quit
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL                                Code

Enter 5 to quit
3
The average marks of the batch is 361.500000

What operation do you need to do of the data enter the number accordingly as mentioned below:
To find top three scorers of the batch enter 1.
To sort the data on descending order of total marks enter 2.
To find the average marks of the batch enter 3.
To find all students scoring above 70 percent enter 4.
Enter 5 to quit
4
Students scoring above 70 percent are:
Id 1 with total marks 475
Id 2 with total marks 450
Id 3 with total marks 425
Id 4 with total marks 405
Id 5 with total marks 360

What operation do you need to do of the data enter the number accordingly as mentioned below:
To find top three scorers of the batch enter 1.
To sort the data on descending order of total marks enter 2.
To find the average marks of the batch enter 3.
To find all students scoring above 70 percent enter 4.
Enter 5 to quit
6
Invalid Input

What operation do you need to do of the data enter the number accordingly as mentioned below:
To find top three scorers of the batch enter 1.
To sort the data on descending order of total marks enter 2.
To find the average marks of the batch enter 3.
To find all students scoring above 70 percent enter 4.
Enter 5 to quit
5


PS D:\C-programming\Programs\Assignment>
```

Documentaions

This the c-program to read id of 10 studens and marks of each 5 subject and with the help of array.User is able to quit the program whenever he/she wants and by user input the program show the different output.eg. Top three higher marks obtaied student,arranging the marks in decending order,average of batch,and students who have got 70% above marks.Hence the program is executed successfully and outputed is shown.

Marking Scheme

Course: EC3105 (C Programming)
Lecturer: Aashish Acharya
Student name:Kishor

	Full Marks	Obtained Marks
Cover Page/Table of Contents		
Algorithm	15 Marks	
Flowchart	10 Marks	
Documentation	5 Marks	
Code		
Proper Variables and input	7 Marks	
Usage of Functions and Files	24 Marks	
Correctness Outcome	24 Marks	
Demo		
Complete Demo	10 Marks	
Viva Answers	5 Marks	
Total	100 Marks	