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uestion

Write a C program to input a word from the keyboard and store it in a character array called **myArray**. Replace all the letters that have odd numbers as ASCII values with "*".

Hint : ASCII value of **a** is 97 and z is 122.
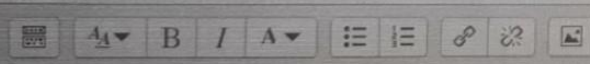ASCII value of **A** is 65 and Z is 90.

Sample Output

Input Array

S	c	h	o	o	l

ASCII values of S, c, h, o, l are 83, 99, 104, 111, 108

Output Array

*	*	h	*	*	l

Question 1

```c
#include <stdio.h>

int main(void)
{
   int i ;
   int upper = 0;
   char myArray[100];

   printf("input word : ");
   scanf("%s" , myArray);

   for(i=0; myArray[i] != '\0'; i++){

       if(myArray[i] % 2 == 0)
       {
         printf("%c\t" , myArray[i]);
       }
```

```c
        else
        {
            printf("*\t");
        }
    }
    return 0;
}
```

Following program is written by a student to display the result of factorial of n.

n! = 1 * 2 * 3 * 4....n

The factorial of a negative number doesn't exist. And the factorial of 0 is 1.

There are **five errors** in the program. Find the errors and write down the **corrected statements** in given space.

1. #include <stdio.h>
2. int main()
3. {
4.   int n, i;
5.   int fact = 0;
6.
7.   printf("Enter an integer: ");
8.   scanf("%f", &n);
9.
10.   #Display error message
11.   if (n < 0)
12.   printf("Error\n");
13.   else
14.   {
15.   for (i = 1; i <= n; ++i)

```
15.     for (i = 1; i <= n; ++i)
16.     {
17.         fact *= n;
18.     }
19.     printf("Factorial of %d = %d", n, i);
20.   }
21.
22.   return 0;
23. }
```

Corrected Statement 01 :
Corrected Statement 02 :
Corrected Statement 03 :
Corrected Statement 04 :
Corrected Statement 05 :

Question 2

01 :-   scanf("%d" , &n) ;
02 :-   fact = 1 ;
03 :-   //display error massage
04 :-   fact *= i ;
05 :-   printf("Factorial od %d = %d " , n , fact);

Following C program used to read five Item details (Item Code, Item Name, Item Price) of grocery store from keyboard and store them in text file called 'items.dat'. Fill the missing words/statements in following C program.

```c
#include<stdio.h>
int main(void)
{
        int ItemCode;
        char  ItemName[30];
        float ItemPrice;

        int i;
        FILE *fItem;
        fItem = fopen("items.dat", [          ]);

        if ([          ] == NULL)
        {
            printf("File cannot be open");
            return -1;
        }
        for(i = 1; i <= 5; ++i)

for(i = 1; i <= 5; ++i)
{
        printf("Input Item Code: ");
        scanf("%d", &ItemCode);
        printf("Input Item Name: ");
        scanf("%s", ItemName);
        printf("Input Item Price: ");
        scanf("%f", &ItemPrice);
        [          ](fItem, "%d %s %.2f\n", [                    ]);
}
        [          ];
        return 0;
}
```
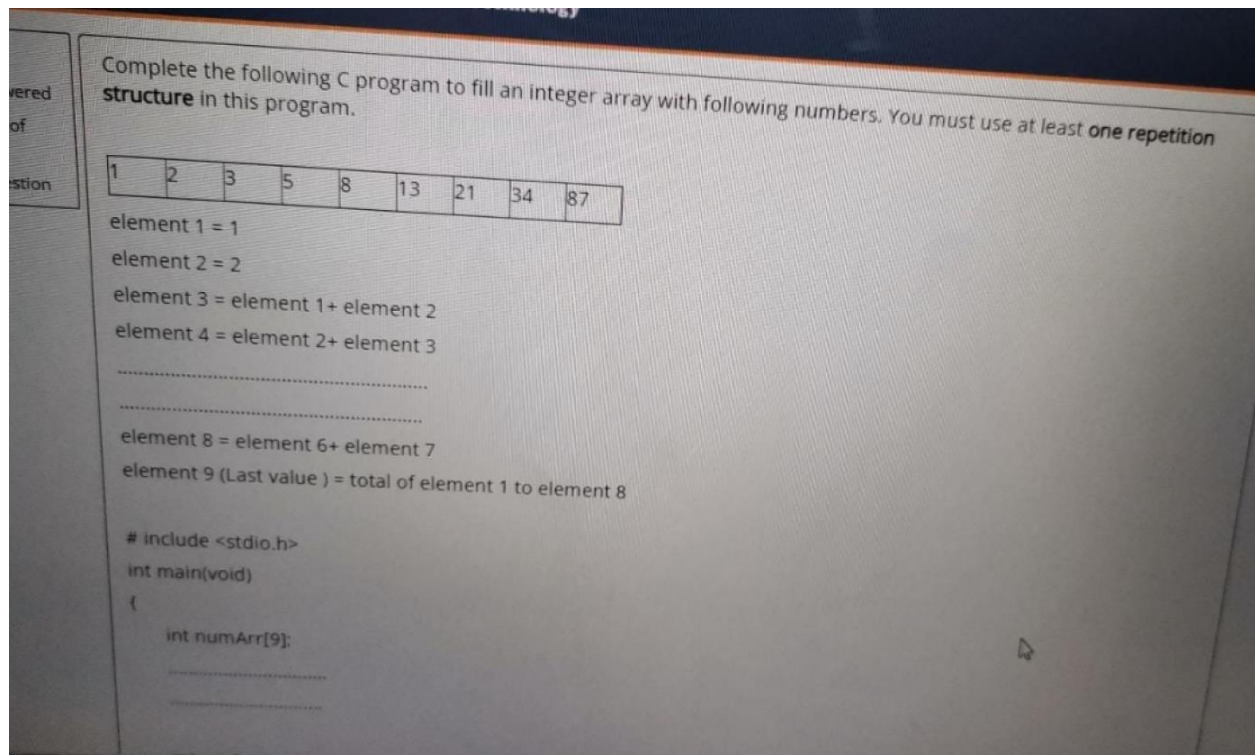
Question 3

01 :- "w+"
02 :- fItem
03 :- fItem
04 :- fprintf
05 :- ItemCode , ItemName , ItemPrice
06 :- fclose (fItem)

Complete the following C program to fill an integer array with following numbers. You must use at least **one repetition** **structure** in this program.

1	2	3	5	8	13	21	34	87

element 1 = 1
element 2 = 2
element 3 = element 1+ element 2
element 4 = element 2+ element 3
....
....
element 8 = element 6+ element 7
element 9 (Last value) = total of element 1 to element 8

```
# include <stdio.h>
int main(void)
{
    int numArr[9];
    ...............................
    ...............................
```

Question 4

```c
#include <stdio.h>

//function main program execution
int main (void )
{
        int i , sum ;
        int numArr[9] ;

        numArr[0] = 1 ;
        numArr[1] = 2 ;
        sum = numArr[0] + numArr[1] ;

        printf("%d  %d " , numArr[0] , numArr[1]);

        for (i = 2 ; i < 8 ; i++)
        {
                numArr[i] = numArr[i-2] + numArr[i-1] ;
                printf("%d " , numArr[i]);
                sum += numArr[i] ;
        }
        numArr[8] = sum ;
        printf("%d" , numArr[8] );
```

5

```
        return 0 ;

} //end function main
```

The file "vcard.dat" contains vaccination details of students at SLIIT. The student registration number , name and the number of dosages taken are included in the file.

vcard.dat file

```
IT12345678   Nishal    2
IT11223345   Amy       2
IT22335566   Nethu     1
IT10378961   Osanda    2
IT13645978   Akash     1
```

Write a C program to read this file and display the number of students with one dosage and two dosages.
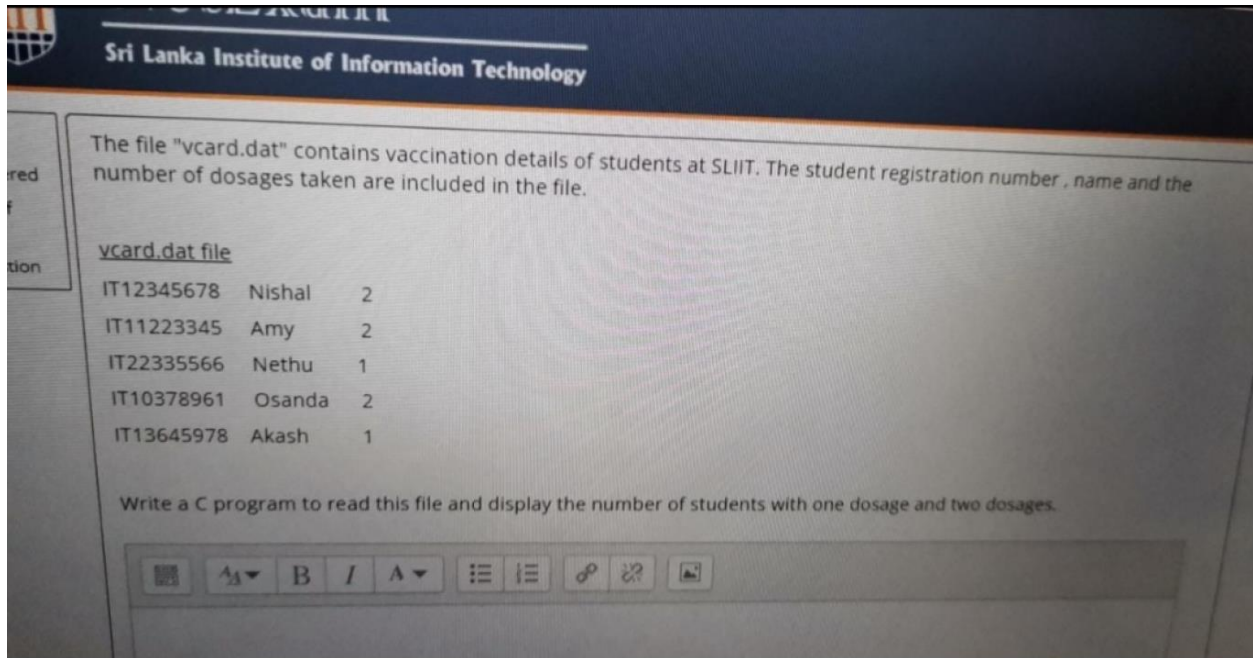
Question 5

Before the programming Create a vcard file and store the Question's details

```c
#include <stdio.h>

int main (void)
{
        int num ;
        int dos1 = 0 , dos2 = 0 ;
        FILE *vcard ;
        vcard = fopen("vcard.dat" , "r+");

        if (vcard == NULL)
        {
                printf("FIle cannot open");
                return -1 ;
        }

        fscanf(vcard , "%*s %*s %d" , &num);

        while (!feof (vcard))
        {
```

```c
            if (num == 1)
            {
                    dos1 += 1 ;
            }
            else if (num == 2)
            {
                    dos2 += 1 ;
            }
            fscanf(vcard , "%*s %*s %d" , &num);
        }

        printf("number of students with one dosages = %d\n" , dos1);
        printf("number of students with two dosages = %d\n" , dos2);

        fclose(vcard);
        return 0 ;
}
```

Following C program contains the structure called "Pharmacy" to store medicinal product details.

productNo	integer
productName	char[50]
unitPrice	double
qty	integer

The program creates a variable called t1 using *Pharmacy* data type and store some data entered through keyboard. Next the program calculates the total price based on quantity and unit price, then print the details on the screen as shown in output below. **Complete the following C code by filling the missing statements.**

Input Values:

productNo	productName	unitPrice	qty
1001	AZITHROMYCIN	50.00	120

Output:

productNo	productName	Total Price
1001	AZITHROMYCIN	6000.00

```c
#include<stdio.h>
```

```c
#include<std

{
        int productNo;
        char productName[30];
        double unitPrice;
        int qty;
}:
int main(void){
        int i;
        float total;
                                    t1;
        printf("Enter Product No: ");

        printf("Enter Product Name: ");
        scanf("%s", t1.productName);
        printf("Enter Product Price: ");
        scanf("%lf", &t1.unitPrice);
        printf("Enter Product Quantity: ");
        scanf("%d", &t1.qty);
```
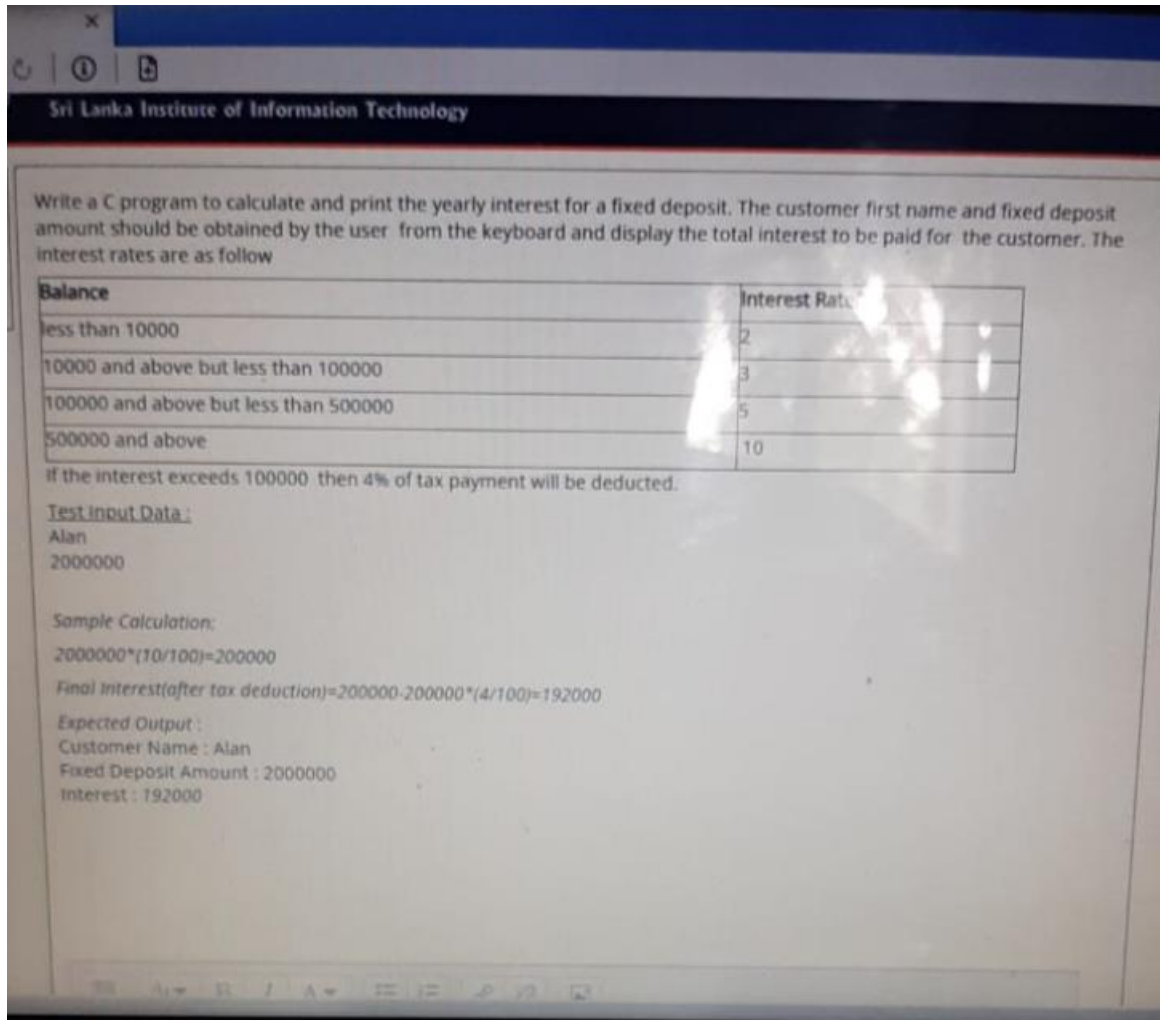
```c
scanf("%d", &t1.qty);




    return 0;
}
```

Question 6

01 :- struct Pharmacy
02 :- struct Pharmacy
03 :- scanf(" %d " , &t1.productNo) ;
04 :- total = t1.unitPrice * t1.qty ; ⟵ total= (float)t1.unitPrice* (float)t1.qty
05 :- printf(" %d \t %s \t %.2f " , t1.productNo , t1.productName , total) ;

Write a C program to calculate and print the yearly interest for a fixed deposit. The customer first name and fixed deposit amount should be obtained by the user from the keyboard and display the total interest to be paid for the customer. The interest rates are as follow

Balance	Interest Rate
less than 10000	2
10000 and above but less than 100000	3
100000 and above but less than 500000	5
500000 and above	10

If the interest exceeds 100000 then 4% of tax payment will be deducted.

Test Input Data :
Alan
2000000

Sample Calculation:
2000000*(10/100)=200000
Final Interest(after tax deduction)=200000-200000*(4/100)=192000

Expected Output :
Customer Name : Alan
Fixed Deposit Amount : 2000000
Interest : 192000

Question 7

```c
#include <stdio.h>

int main()
{
    char name[50];
    int amount , tax ;


    printf("Customer name : ");
    scanf("%s" , name);
```

9

```c
    printf("Fixed Diposit amount :" );
    scanf("%d" , &amount);


    if(amount < 10000)
    {
       tax = amount * (2.0 / 100) ;
    }

    else if(amount >= 10000 && amount < 100000)
    {
       tax = amount * (3.0 / 100) ;
    }

    else if(amount >= 100000 && amount < 500000)
    {
       tax = amount * (5.0 / 100) ;
    }
    else if(amount >= 500000)
    {
       tax = amount * (10.0 / 100) ;
    }

    if (tax > 100000)
    {
       tax = tax - tax * (4.0 / 100) ;
    }

    printf("Interest : %d" , tax);
    return 0;
}
```

Complete the following C statement to calculate the result of $\sqrt[2]{|b*b-4*a*c|}$

Assume a, b and c variables are integers.

float answer = ☐ (☐ (☐ (☐ , 2) - 4 * a * c)):

Question 8

01 :- sqrt

02 :- fabs

03 :- pow

04 :- b

Write a C program to do the following.

a) Create a 2D integer array called **twoD** with 3 rows and 3 columns.

b) Input numbers from the keyboard and store in the array.

c) Replace the lower triangular by value 0

d) Find sum of rows and columns of the matrix.

Hint : You need to use repetition structures to manipulate the matrix

Test Data :

Input elements to the matrix :

element - [0],[0] : 5

element - [0],[1] : 6

element - [0],[2] : 9

element - [1],[0] : 7

....

....

Expected Output :

The 2D array is: 5 6 9

                 7 8 4

                 2 1 1

After setting 0 in lower triangular

The 2D array is: 5 6 9

                 0 8 4

                 0 0 1

The sum of rows : 20, 12, 1

The sum of columns : 5, 14, 14

Question 9

```c
#include <stdio.h>

int main (void)
{
        int twoD[3][3];
        int i , j ;
        int sum_row[3] = {0} ;
        int sum_columns[3] = {0};
```

11

```c
printf("input element of matrix : \n");


for (i = 0 ; i < 3 ; i++)
{
        for(j = 0 ; j < 3 ; j++)
        {
                printf("element - [%d],[%d] : " , i , i);
                scanf("%d" , &twoD[i][j]);
        }
}

printf("\n2D array is : \n");

for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                printf("%d   " , twoD[i][j]);
        }
        puts(" ");
}

printf("\nAfter settinf 0 in lower tringular\n");


printf("\n2D array is : \n");

for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                if (i <= j)
                {
                        printf("%d " , twoD[i][j]);
                }
                else
                {
                        twoD[i][j] = 0 ;
                        printf("%d " , twoD[i][j]);
                }

        }
        puts(" ");
```

j

12

```
        }

        printf("\nThe sum of rows : ");
        for (i = 0 ; i < 3 ; i++)
        {
                for (j = 0 ; j < 3 ; j++)
                {
                        sum_row[i] += twoD[i][j];
                }
                printf("%d " ,sum_row[i] );
        }

        printf("\nThe sum of columns : ");
        for (i = 0 ; i < 3 ; i++)
        {
                for (j = 0 ; j < 3 ; j++)
                {
                        sum_columns[i] += twoD[j][i];
                }
                printf("%d " ,sum_columns[i] );
        }

        return 0 ;
}
```

An event management company needs to implement a system to manage their online events. They want to create few functions to be integrated to the system such as register a user to the event, purchase event ticket, grant discounts based on each event.

To purchase ticketes, one must submit the **ticket type**(tType) . 1- Gold. 2 - Silver, 3 - Bronze, **session** (session). (m- morning. a - afternoon, e -evening) and the **number of tickets to purchase** (ticketCount). Then the function should display the amount of the ticketes purchased.

Ticket Type   Price
1 - Gold   5000/=
2 - Silver   2500/=
3 - Bronze   1000/=

Fill in the blanks to complete the function **purchase()**.

_____ purchase(_____ tType , _____ _____ , int ticketCount)
{
        float total = 0.0;
        if(tType == 1)
        {
                total = ticketCount * 5000.0;
        }
        else if(tType == 2)
        {
                total = ticketCount * 2500.0;
        }
```
```

```
}
    else if(tType == 2)
    {
        total = ticketCount * 2500.0;
    }
    else if(tType == 3)
    {
        total = ticketCount * 1000.0;
    }
    switch(session)
    {
        case 'm' : printf("Thank you for purchasing %d tickets for morning session\n", ticketCount);
            break;
        case 'a' : printf("Thank you for purchasing %d tickets for afternoon session\n", ticketCount);
            break;
        case 'e' : printf("Thank you for purchasing %d tickets for evening session\n", ticketCount);
            break;
    }
    printf("The amount of the tickets purchased : %.2f\n",[        ]);
}
```

Question 10

01 :- void
02 :- int
03 :- char
04 :- session
05 :-   total

Write two assert statements to test the following function. This function will return Surface Area of Cylinder when it's radius(r) and height(h) are passed as parameters.

```
double cylinderSurfaceArea(double r, double h)
{
    double area;
    area = (2 * 22 / 7.0 * r * h) + (2 * 22 / 7.0 * r * r);
    return area;
}
```
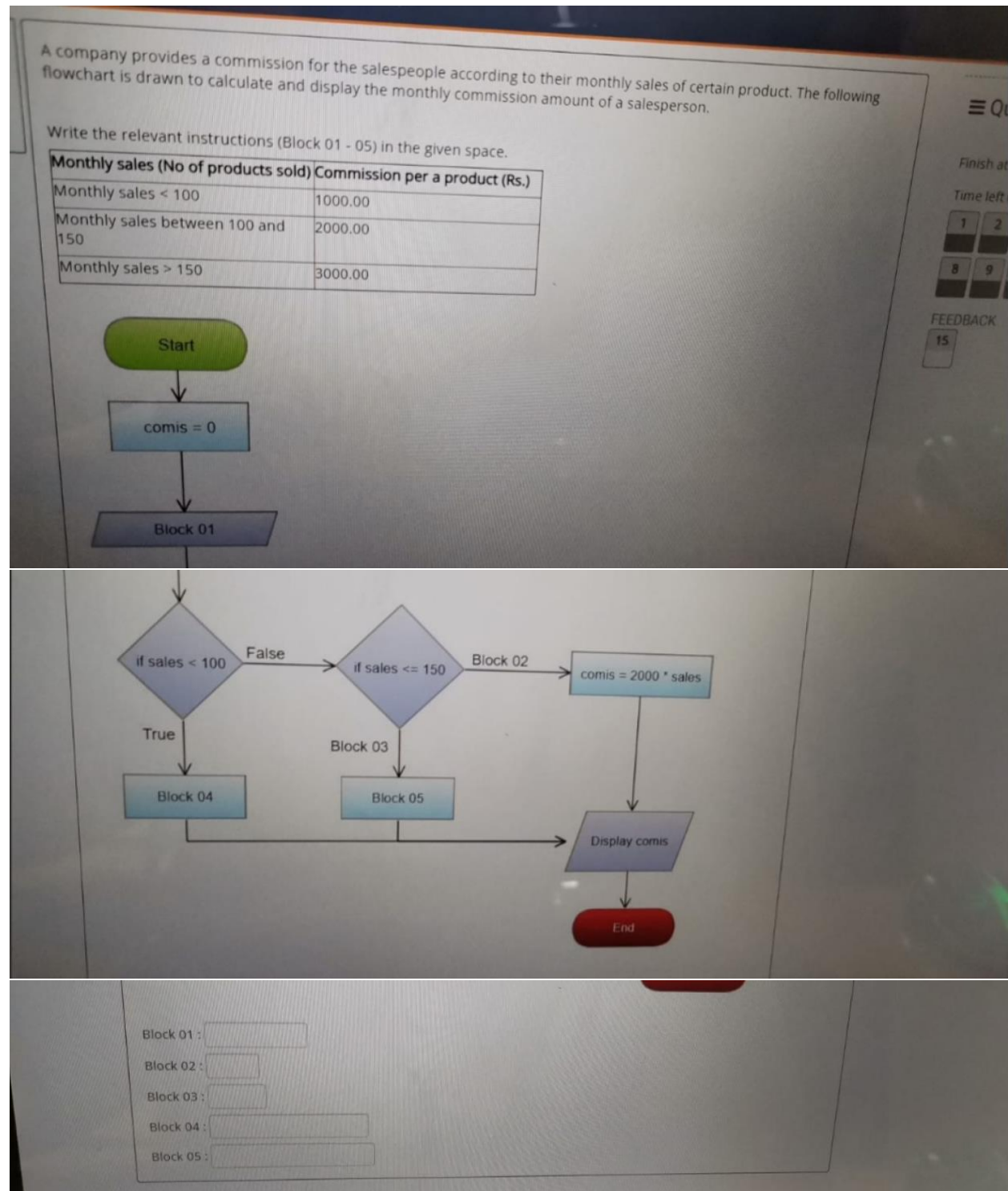
Sample Data

radius(r)	height(h)	Area of cylinder surface (area)
5.0	8.0	408.41
7.0	10.0	747.7

Question 11

14

assert (fabs (double cylinderSurfaceArea (5.0 , 8.0) - 408.41) < 0.001) ;
assert (fabs (double cylinderSurfaceArea (7.0 , 10.0) - 747.7) < 0.001) ;

A company provides a commission for the salespeople according to their monthly sales of certain product. The following flowchart is drawn to calculate and display the monthly commission amount of a salesperson.

Write the relevant instructions (Block 01 - 05) in the given space.

Monthly sales (No of products sold)	Commission per a product (Rs.)
Monthly sales < 100	1000.00
Monthly sales between 100 and 150	2000.00
Monthly sales > 150	3000.00

Start

comis = 0

Block 01

if sales < 100 — False → if sales <= 150 — Block 02 → comis = 2000 * sales

True
↓
Block 04

Block 03
↓
Block 05

→ Display comis

End

Block 01 :
Block 02 :
Block 03 :
Block 04 :
Block 05 :

Question 12

15

Block 01 :- input sales

Block 02 :- Ture

Block 03 :- False

Block 04 :- comis = 1000 * sales

Block 05 :-   comis = 3000 * sales

Fill the blanks in the following C program so that it will print following pattern to the screen. Note: you can only use the given functions and variables to fill the blanks.

output: first-first-first*

```c
#include<stdio.h>
/* function declaration */
void func1(int num1 );
void func2();
int func3(char c);
char func4(int n1,int n2);
int main () {
    int n1=100;
    char c1='b';
    char c2='c';
    func1(          );

              0;

    printf("%c",func4(func3(        )        (        )));
    return 0;
}
void func1(int num1 ) {
    int t;
    if (num1 == 100)
```

```
int i;
if (num1 == 100)
    for (i=1;i < 3;++i) {
        func2();
        printf("-");
    } else
        printf("Second");
}
void func2() {
    printf("first");
}
int func3(char c) {
    switch (c){
    case 'a': return 1;
    case 'b': return 2;
    case 'c': return 3;
    }
}
char func4(int n1,int n2) {
    if (n1==2 && n2==3)
        return '*';
    else
        return '+';
}
```

Question 13

```
func1 ( n1 ) ;
func2 ( ) ;
printf( " %c " , func4( func3 ( c1 ) , func3 ( c2 ) )) ;
```
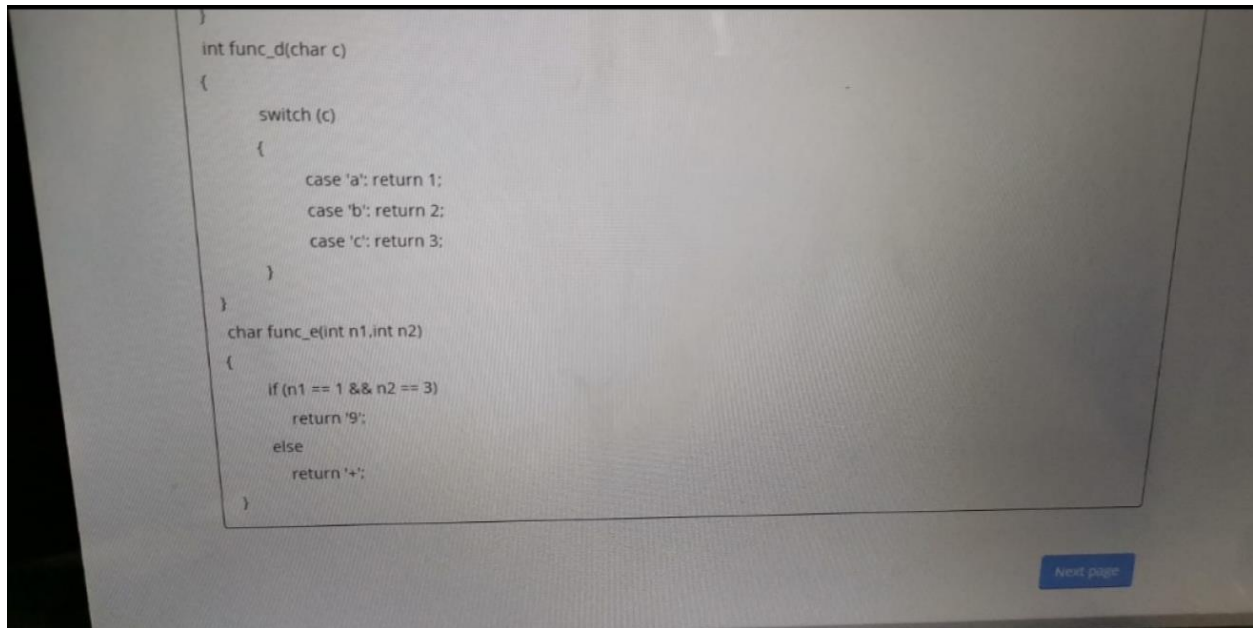
Fill the blanks in the following c program so that it will print following pattern to the screen. Note: you can only use the given functions and variables to fill the blanks.

Output: firstthird-firstthird-firstthird9

```
#include <stdio.h>
/* function declaration */
void func_a(int num1);
void func_b();
int func_d(char c);
char func_e(int n1,int n2);
int main ()
{
    int m1 = 100;
    char c1 = 'a';
    char c2 = 'c';
    func_a(      );
         ();
    printf("%c",func_e(func_d(      ).      (      )));
```

```
    int i;
    if (num1 == 100)
        for (i = 1;i < 3; ++i)
        {
            func_b();
            printf("-");
        }
    else
        printf("Second");
}
void func_b()
{
    printf("first");
    printf("third");
}
int func_d(char c)
{
    switch (c)
    {
        case 'a': return 1;
        case 'b': return 2;
```
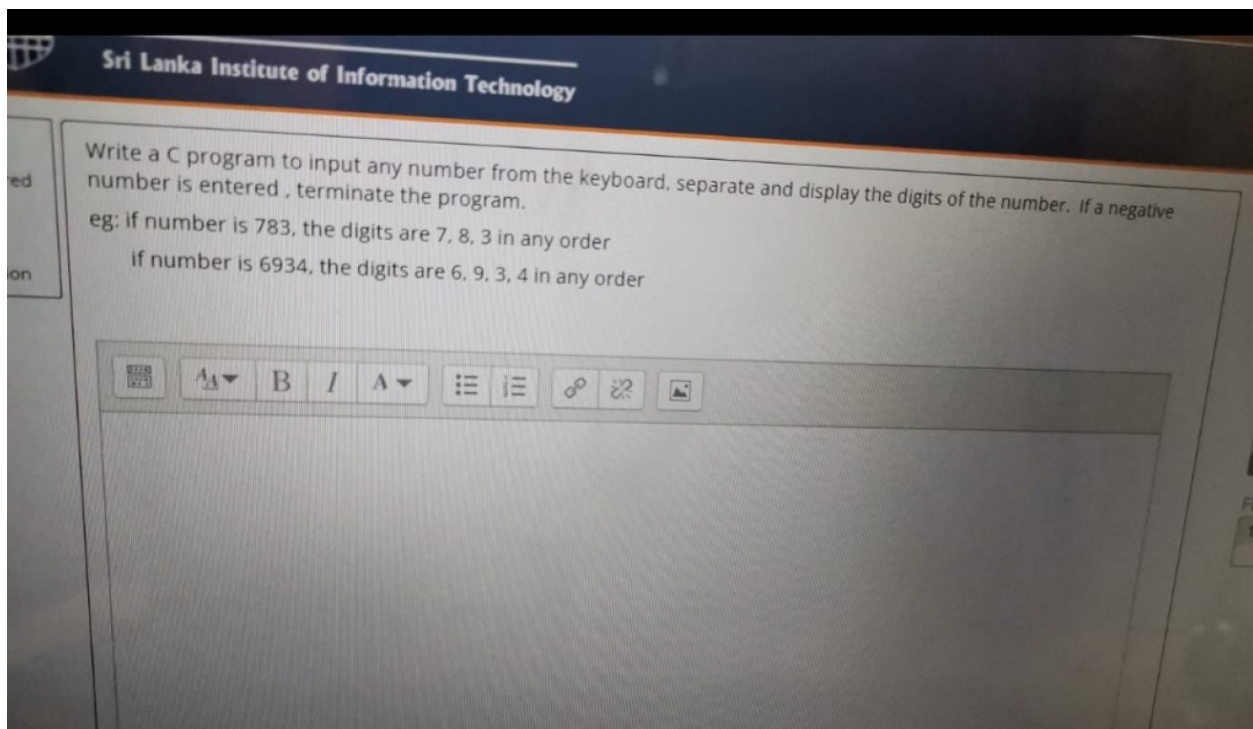
```
}
int func_d(char c)
{
        switch (c)
        {
                case 'a': return 1;
                case 'b': return 2;
                case 'c': return 3;
        }
}
char func_e(int n1,int n2)
{
        if (n1 == 1 && n2 == 3)
                return '9';
        else
                return '+';
}
```

Next page

Question 14

```
func_a ( m1 ) ;
func_b ( ) ;
printf( " %c " , func_e( func_d ( c1 ) , func_d ( c2 ) )) ;
```

ed

Write a C program to input any number from the keyboard, separate and display the digits of the number. If a negative number is entered , terminate the program.

eg: if number is 783, the digits are 7, 8, 3 in any order

on

if number is 6934, the digits are 6, 9, 3, 4 in any order

Question 15

19

```c
#include <stdio.h>

int main (void)
{
        char num[100] , I ;

        while (1 )
        {
                printf("Enter the number : ");
                scanf("%s" , &num);

                if (num[0] == '-')
                {
                    return -1 ;
                }
                for (i = 0 ; num[i] != '\0' ; i++)
                {
                        printf(" %c , " , num[i]);
                }

                puts(" ");
        }
        return  0 ;
}
```
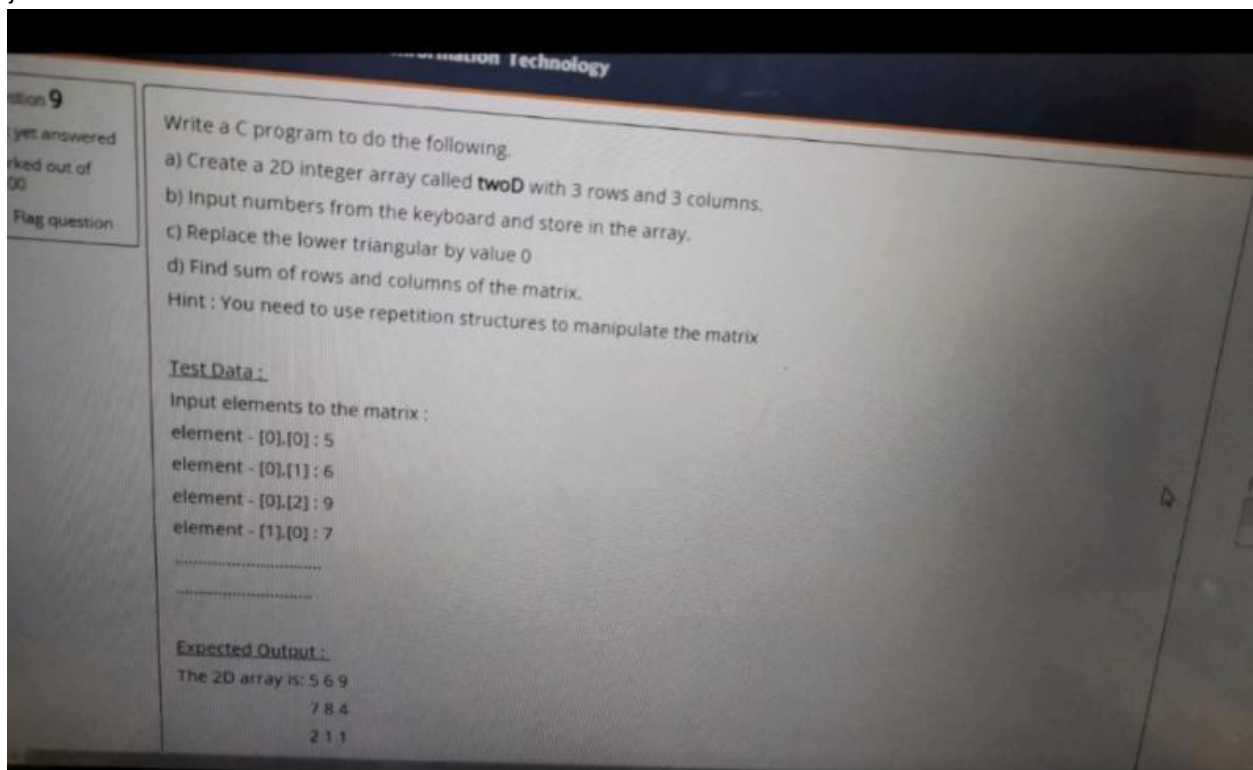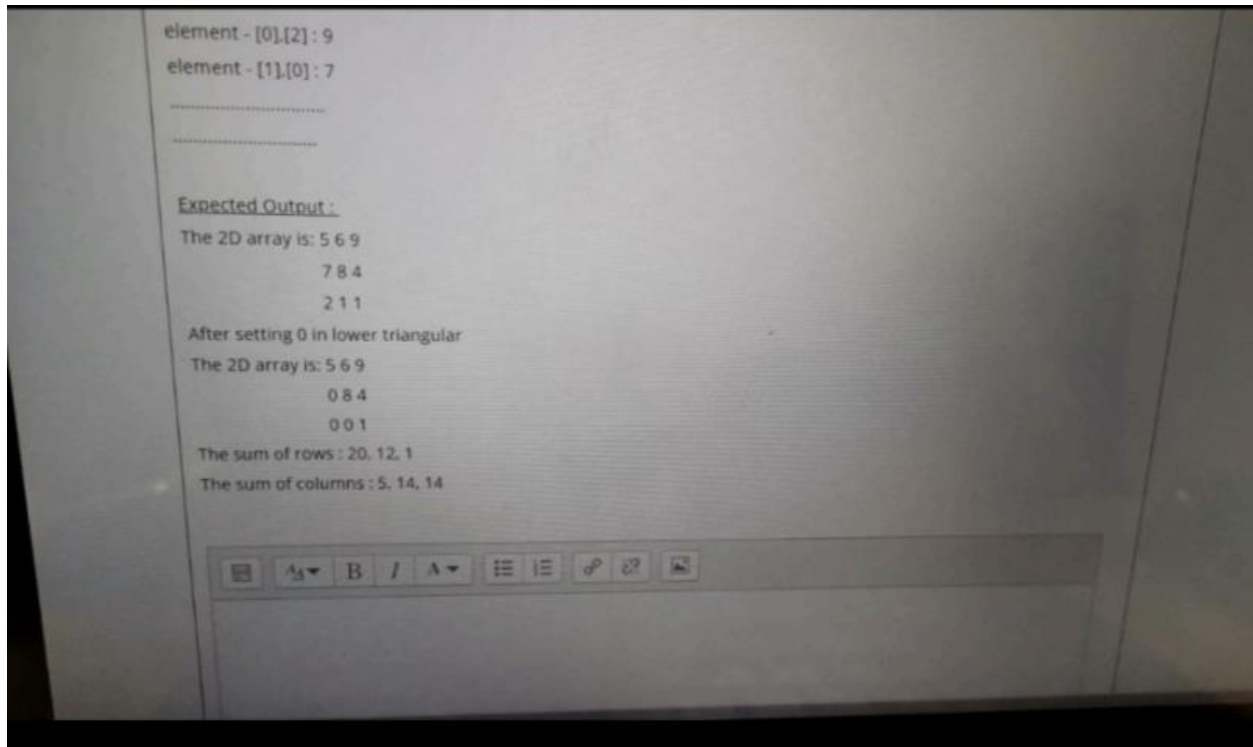
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Flag question

Write a C program to do the following.

a) Create a 2D integer array called **twoD** with 3 rows and 3 columns.

b) Input numbers from the keyboard and store in the array.

c) Replace the lower triangular by value 0

d) Find sum of rows and columns of the matrix.

Hint : You need to use repetition structures to manipulate the matrix

Test Data :

Input elements to the matrix :

element - [0],[0] : 5
element - [0],[1] : 6
element - [0],[2] : 9
element - [1],[0] : 7

....

....

Expected Output :

The 2D array is: 5 6 9

7 8 4

2 1 1

```
element - [0].[2] : 9
element - [1].[0] : 7

.................................

.................................

Expected Output :
The 2D array is: 5 6 9
                 7 8 4
                 2 1 1
After setting 0 in lower triangular
The 2D array is: 5 6 9
                 0 8 4
                 0 0 1
The sum of rows : 20, 12, 1
The sum of columns : 5, 14, 14
```

Question 16

```c
#include <stdio.h>

int main (void)
{
        int twoD[3][3];
        int i , j ;
        int sum_row[3] = {0} ;
        int sum_columns[3] = {0};

        printf("input element of matrix : \n");


        for (i = 0 ; i < 3 ; i++)
        {
                for(j = 0 ; j < 3 ; j++)
                {
                        printf("element - [%d],[%d] : " , i , i);
                        scanf("%d" , &twoD[i][j]);
                }
        }

        printf("\n2D array is : \n");

        for (i = 0 ; i < 3 ; i++)
```

21

```c
{
        for (j = 0 ; j < 3 ; j++)
        {
                printf("%d   " , twoD[i][j]);
        }
        puts(" ");
}

printf("\nAfter settinf 0 in lower tringular\n");


printf("\n2D array is : \n");

for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                if (i <= j)
                {
                        printf("%d  " , twoD[i][j]);
                }
                else
                {
                        twoD[i][j] = 0 ;
                        printf("%d  " , twoD[i][j]);
                }

        }
        puts(" ");
}

printf("\nThe sum of rows : ");
for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                sum_row[i] += twoD[i][j];
        }
        printf("%d " ,sum_row[i] );
}

printf("\nThe sum of columns : ");
for (i = 0 ; i < 3 ; i++)
{
```
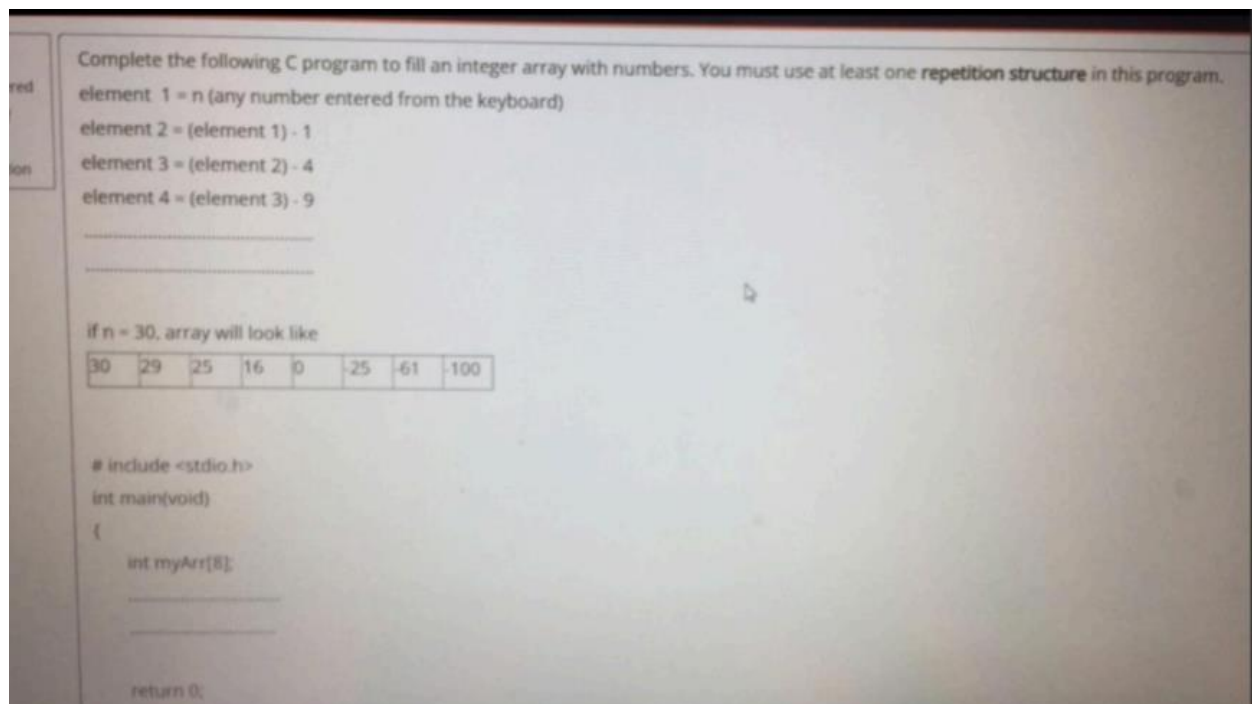
```c
        for (j = 0 ; j < 3 ; j++)
        {
                sum_columns[i] += twoD[j][i];
        }
        printf("%d " ,sum_columns[i] );
    }

    return 0 ;
}
```

Question 16

```c
#include <stdio.h>

//function main program execution
int main (void )
{
        int i ,num;
        int myArr[8] ;

        printf("Enter the number : ");
        scanf("%d" , &num);
```

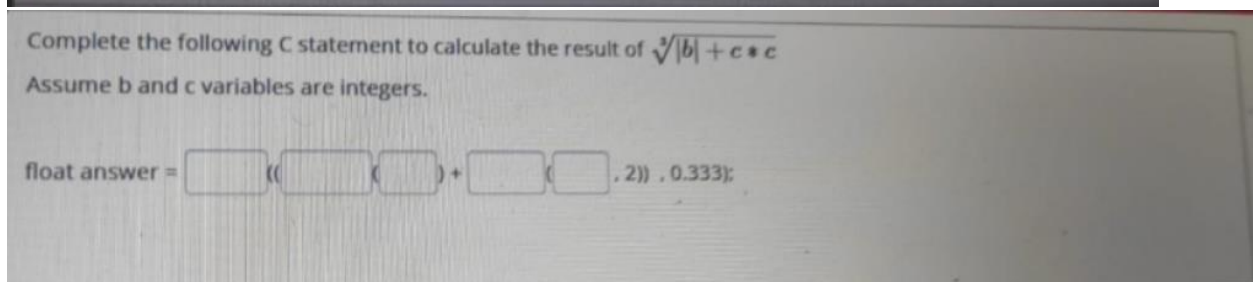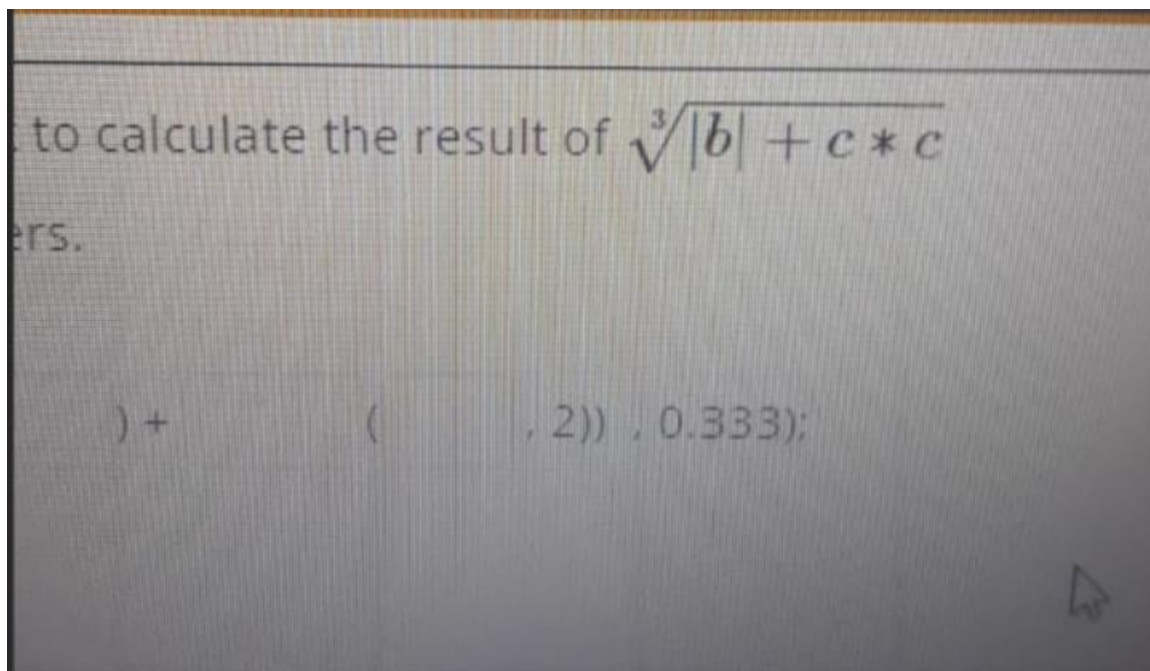```
        myArr[0] = num ;
        printf("\n%d ", myArr[0]);

        for (i = 1 ; i < 8 ; i++)
        {
                myArr[i] = myArr[i-1] - (i*i) ;
                printf("%d ", myArr[i]);
        }

        return 0 ;
} //end function main
```

to calculate the result of $\sqrt[3]{|b|} + c * c$

ers.

) + ( , 2)) , 0.333);

Complete the following C statement to calculate the result of $\sqrt[3]{|b|} + c * c$

Assume b and c variables are integers.

float answer = ____ (( ____ ( ____ ) + ____ ( ____ . 2)) . 0.333);

Question 17

01 :- ~~cbrt~~    pow
02 :- fabs
03 :- b

04 :- pow
05 :- c

Complete the following C program to fill an integer array with following numbers. You must use at lea
program.

| 1 | 2 | 3 | 5 | 8 | 13 | 21 | 34 | 87 |
|---|---|---|---|---|----|----|----|----|

element 1 = 1

element 2 = 2

element 3 = element 1+ element 2

element 4 = element 2+ element 3

..............................................

..............................................

element 8 = element 6+ element 7

element 9 (Last value ) = total of element 1 to element 8

```
# include <stdio.h>
int main(void)
{
    int numArr[9];
    ..............................
    ..............................

    return 0;
}
```

Question 18

```c
#include <stdio.h>

//function main program execution
int main (void )
{
        int i , sum ;
        int numArr[9] ;

        numArr[0] = 1 ;
        numArr[1] = 2 ;
        sum = numArr[0] + numArr[1] ;

        printf("%d  %d  " , numArr[0] , numArr[1]);

        for (i = 2 ; i < 8 ; i++)
```

25

```c
    {
            numArr[i] = numArr[i-2] + numArr[i-1] ;
            printf("%d  " , numArr[i]);
            sum += numArr[i] ;
    }
    numArr[8] = sum ;
    printf("%d" , numArr[8] );

    return 0 ;

} //end function main
```
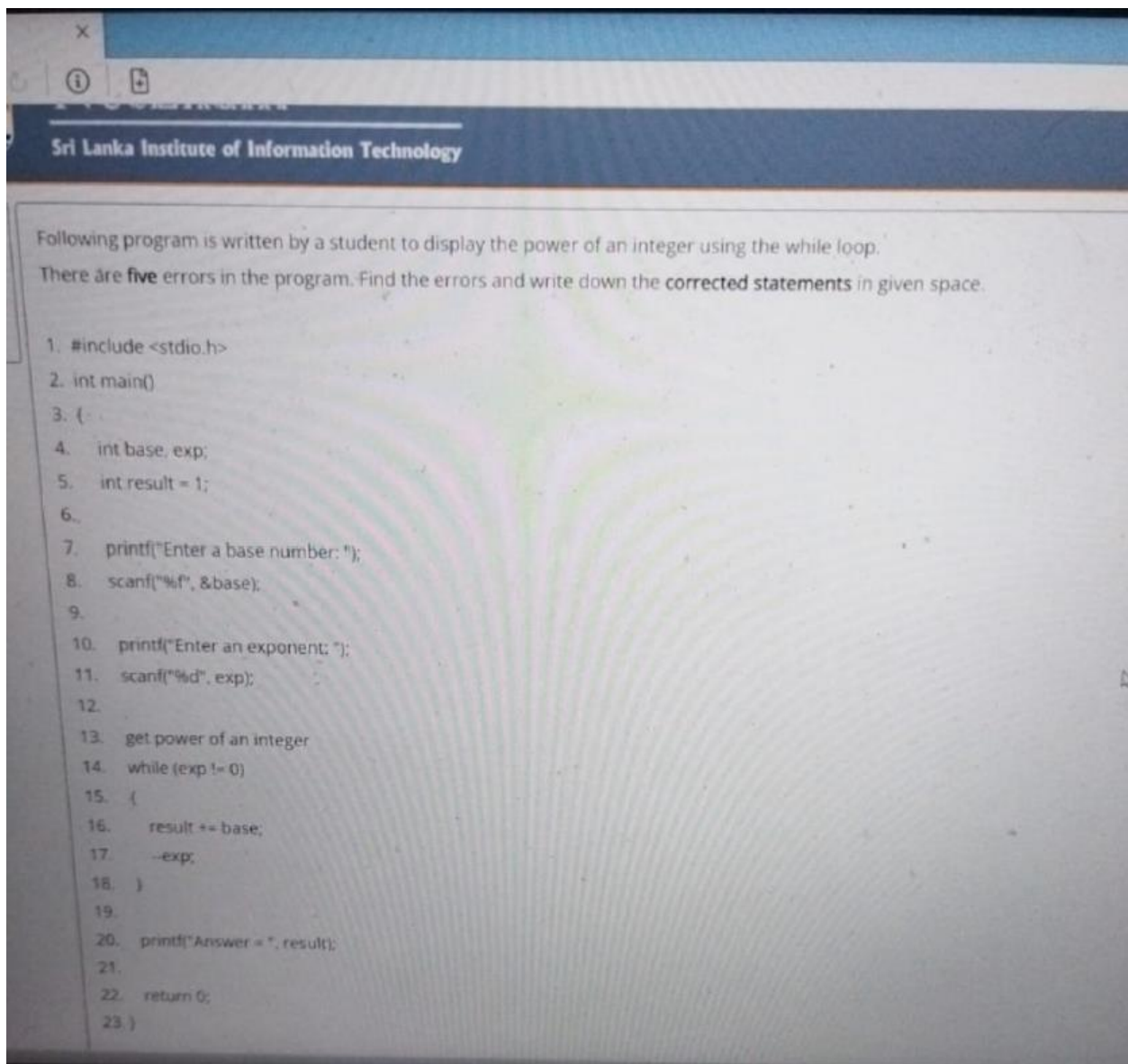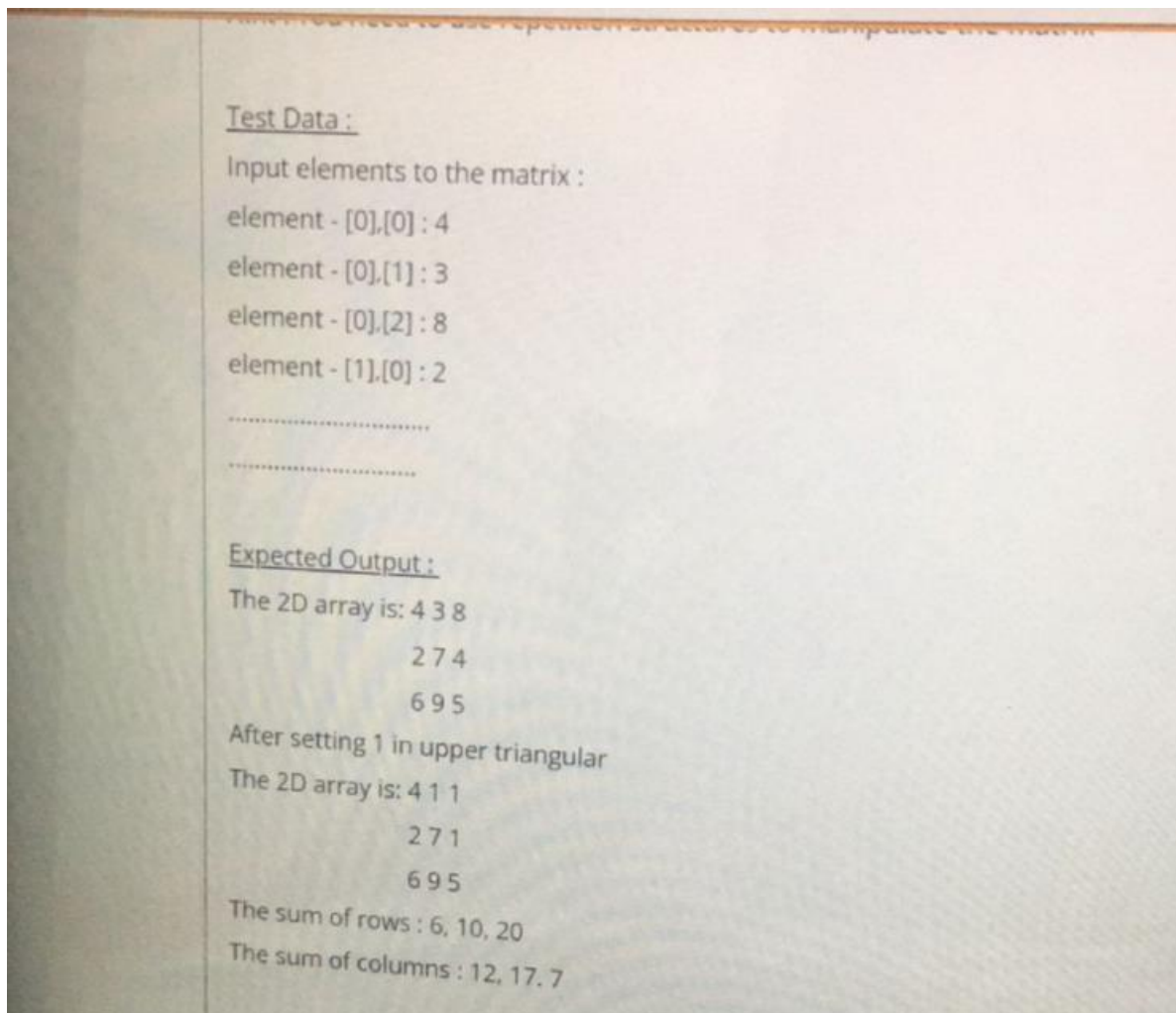
Following program is written by a student to display the power of an integer using the while loop.

There are **five** errors in the program. Find the errors and write down the **corrected statements** in given space.

```c
1.  #include <stdio.h>
2.  int main()
3.  {
4.      int base, exp;
5.      int result = 1;
6.
7.      printf("Enter a base number: ");
8.      scanf("%f", &base);
9.
10.     printf("Enter an exponent: ");
11.     scanf("%d", exp);
12.
13.     get power of an integer
14.     while (exp != 0)
15.     {
16.         result *= base;
17.         --exp;
18.     }
19.
20.     printf("Answer = ", result);
21.
22.     return 0;
23. }
```

Question 19

8 line :-   scanf("%d " , &base) ;

11 line :- scanf("%d " , &exp) ;

13 line :- //get power of an integer

16 line :- result *= base ;

20 line :- printf("Answer = %d " , result) ;

Test Data :

Input elements to the matrix :

element - [0],[0] : 4

element - [0],[1] : 3

element - [0],[2] : 8

element - [1],[0] : 2

....

....

Expected Output :

The 2D array is: 4 3 8

 2 7 4

 6 9 5

After setting 1 in upper triangular

The 2D array is: 4 1 1

 2 7 1

 6 9 5

The sum of rows : 6, 10, 20

The sum of columns : 12, 17. 7

Question 20

#include <stdio.h>

int main (void)
{

```c
int twoD[3][3];
int i , j ;
int sum_row[3] = {0} ;
int sum_columns[3] = {0};

printf("input element of matrix : \n");


for (i = 0 ; i < 3 ; i++)
{
        for(j = 0 ; j < 3 ; j++)
        {
                printf("element - [%d],[%d] : " , i , i);
                scanf("%d" , &twoD[i][j]);
        }
}

printf("\n2D array is : \n");

for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                printf("%d   " , twoD[i][j]);
        }
        puts(" ");
}

printf("\nAfter settinf 1 in upper tringular\n");


printf("\n2D array is : \n");

for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                if (i >= j)
                {
                        printf("%d " , twoD[i][j]);
                }
                else
                {
                        twoD[i][j] = 1 ;
```

```c
                    printf("%d  " , twoD[i][j]);
            }

        }
        puts(" ");
}

printf("\nThe sum of rows : ");
for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                sum_row[i] += twoD[i][j];
        }
        printf("%d " ,sum_row[i] );
}

printf("\nThe sum of columns : ");
for (i = 0 ; i < 3 ; i++)
{
        for (j = 0 ; j < 3 ; j++)
        {
                sum_columns[i] += twoD[j][i];
        }
        printf("%d " ,sum_columns[i] );
}

return 0 ;
}
```

Write a C program to calculate and print the yearly interest for a fixed deposit. The customer Id(4 digit) and fixed deposit amount should be obtained by the user from the keyboard and display the total interest to be paid for the customer. The interest rates are as follow

Balance	Interest Rate(%)
20000 or less	3
above 20000 but less than or equal to 200000	5
above 200000 but less than or equal to 1000000	7
above 1000000	10

If the interest exceeds 50000 then 3% of tax payment will be deducted.

Test Input Data :
1101
2000000

Sample Calculation:

2000000*10/100=200000

Final Interest payment=200000-200000*(3/100)=194000

Expected Output :
Customer ID : 1101
Fixed Deposit Amount : 2000000
Interest : 194000

Question 21

```c
#include <stdio.h>

int main()
{
   char name[50];
   int amount , tax ;


   printf("Customer name : ");
   scanf("%s" , name);

   printf("Fixed Diposit amount :" );
   scanf("%d" , &amount);


   if(amount <= 20000)
   {
      tax = amount * (3.0 / 100) ;
   }

   else if(amount > 20000 && amount <= 200000)
   {
      tax = amount * (5.0 / 100) ;
   }
```

```c
    else if(amount > 200000 && amount <= 1000000)
    {
       tax = amount * (7.0 / 100) ;
    }
    else if(amount > 1000000)
    {
       tax = amount * (10.0 / 100) ;
    }

    if (tax > 50000)
    {
       tax = tax - tax * (3.0 / 100) ;
    }

    printf("Interest : %d" , tax);
    return 0;
}
```

Write a C program to read and display all content from file "studentcount.dat" that has the subject name, and the student count of severa subjects offered by a institute. Also find and display the **most popular subject**.

studentCount file
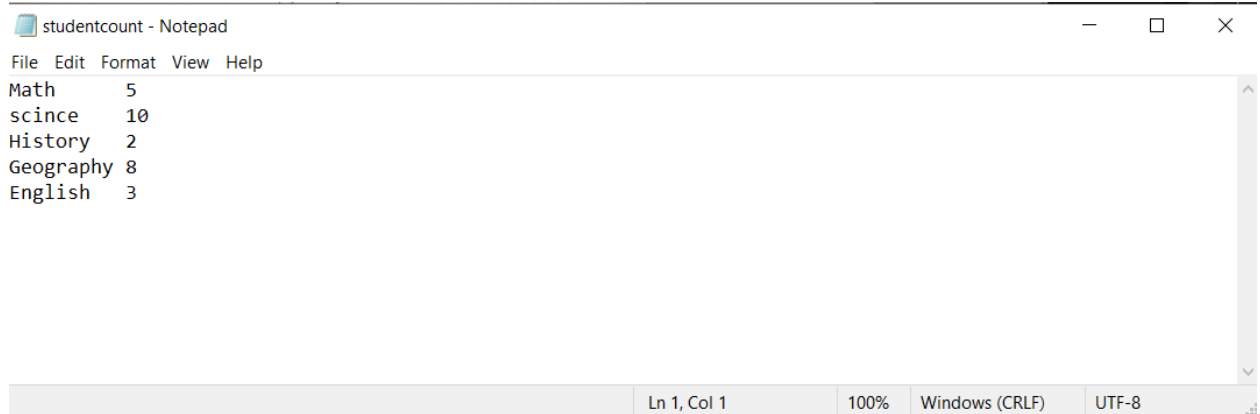
    Maths 5
    Science 10
    History 2
    Geography 8
    English 3

The output of the main program must be formatted as follows:

    Subject Name   Student Count
    Maths   5
    Science   10
    History   2
    Geography   8
    English   3
Most popular subject is : Science

Question 22

```
Math        5
scince      10
History     2
Geography   8
English     3
```

Ln 1, Col 1   100%   Windows (CRLF)   UTF-8

```c
#include <stdio.h>
#include <string.h>

int main (void)
{
        char sub[20];
        char m_sub[20];
        int count , most = 0 ;
        FILE *student ;
        student = fopen ("studentcount.dat" , "r+");

        if (student == NULL)
        {
                printf("File cannot open");
                return -1 ;
        }

        printf("Subject name \t\t student count\n");
        fscanf(student , "%s %d" , sub , &count);

        most = count ;
        while (!feof (student))
        {
                printf("%s \t \t \t %d \n" , sub , count );
                if (most < count)
                {
                        strcpy (m_sub , sub);
                        most = count ;
                }
                fscanf(student , "%s %d" , sub , &count);
        }
        printf("\nMost populay subject is : %s" , m_sub);
```
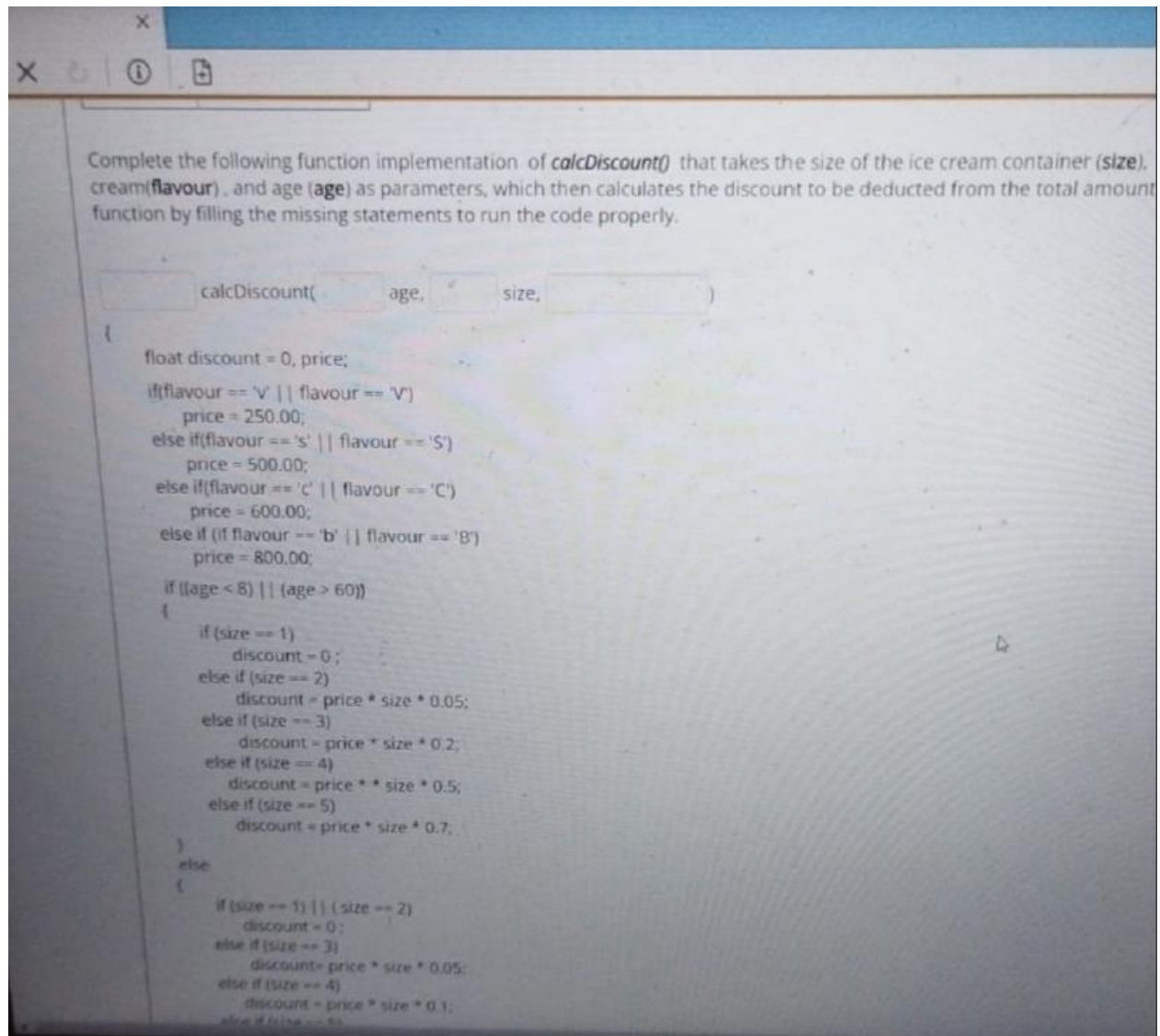
```
        fclose (student);
        return 0 ;
}
```

Complete the following function implementation of *calcDiscount()* that takes the size of the ice cream container (**size**).
cream(**flavour**) , and age (**age**) as parameters, which then calculates the discount to be deducted from the total amount
function by filling the missing statements to run the code properly.

```
          calcDiscount(        age,       size,                 )
{
    float discount = 0, price;
    if(flavour == 'v' || flavour == 'V')
         price = 250.00;
    else if(flavour == 's' || flavour == 'S')
         price = 500.00;
    else if(flavour == 'c' || flavour == 'C')
         price = 600.00;
    else if (if flavour == 'b' || flavour == 'B')
         price = 800.00;

    if ((age < 8) || (age > 60))
    {
        if (size == 1)
            discount = 0;
        else if (size == 2)
            discount = price * size * 0.05;
        else if (size == 3)
            discount = price * size * 0.2;
        else if (size == 4)
            discount = price * * size * 0.5;
        else if (size == 5)
            discount = price * size * 0.7;
    }
    else
    {
        if (size == 1) || (size == 2)
            discount = 0;
        else if (size == 3)
            discount = price * size * 0.05;
        else if (size == 4)
            discount = price * size * 0.1;
        else if (size == 5)
```

```
if ((age < 8) || (age > 60))
{
    if (size == 1)
        discount = 0 ;
    else if (size == 2)
        discount = price * size * 0.05;
    else if (size == 3)
        discount = price * size * 0.2;
    else if (size == 4)
        discount = price * * size * 0.5;
    else if (size == 5)
        discount = price * size * 0.7;
}
else
{
    if (size == 1) || ( size == 2)
        discount = 0 ;
    else if (size == 3)
        discount= price * size * 0.05;
    else if (size == 4)
        discount = price * size * 0.1;
    else if (size == 5)
        discount = price * size * 0.2;

}

return discount  ;

}
```

Question 23

01 :- float
02 :- int
03 :- int
04 :- char flavour
O5:- discount

Book publishing house distributes books to bookstores. Book publishers records following book details before the distribution.

Book No	integer
Book Name	char[50]
Book Price	float
Quantity	integer

Following C program uses a structure called "Book" to store book details before the distribution. You need to enter the details of 3 books from keyboard and calculate the total price of each book based on the quantity ordered. Finally print the details as shown in second table. **Complete the following C code by filling in the missing words/statements.**

Input Values:

Book No	Book Name	Book Price	Quantity
1001	C Programming	1500.00	12
1002	Algorithms	1750.00	8
1003	Java	1200.00	10

Output:

Book No	Book Name	Total Price
1001	C Programming	18000.00
1002	Algorithms	14000.00
1003	Java	12000.00

```c
#include<stdio.h>

_____ {

    int bookNo;
    char bookName[50];
    double bookPrice;
    int qty;
};

int main(void){
    _____ book[3];
    int i;
    float total[3]={0};
    for(i=0; i<= 3; i++){
        printf("Enter Book No: ");
        scanf("%d",&book[i].bookNo);
        printf("Enter Book Name: ");
        _____
        printf("Enter Book Price: ");
        scanf("%lf",&book[i].bookPrice);
        printf("Enter Book Quantity: ");
        scanf("%d",&book[i].qty);

        _____ = book[i].bookPrice * book[i].qty;
    }
    printf("Book No\tBook Name\t\tTotal Price \n");

    for(i=0;i<3;i++){
        printf("%d\t%s\t\t%.2fn",
```
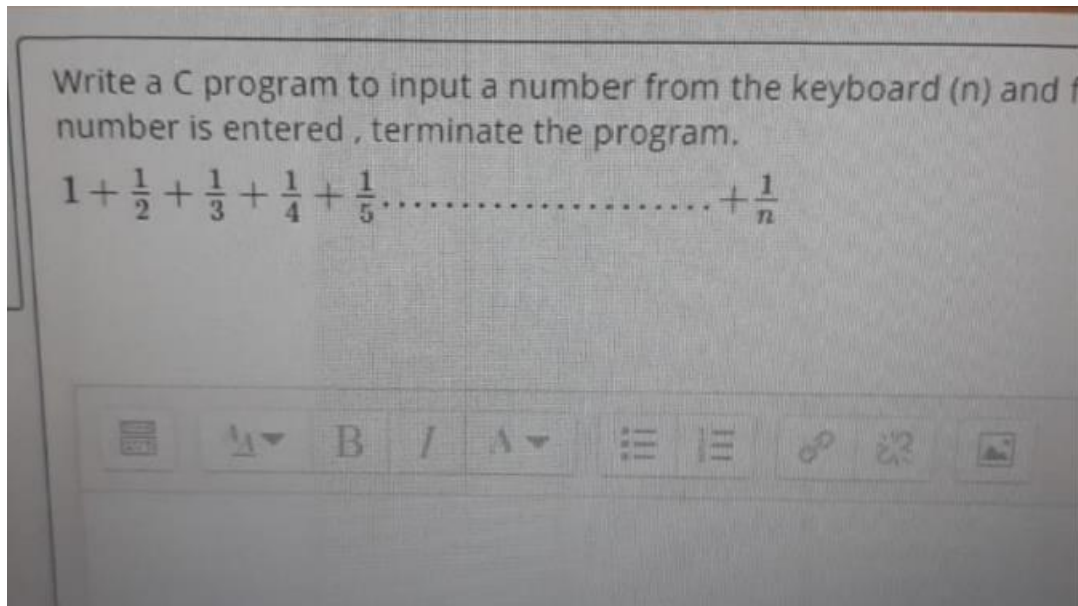
Question 24

01 :- struct Book
02 :- struct Book
03 :- scanf(" %s " , book[i] . bookName) ;
04 :- total[i]
05 :- printf(" %d \t %s \t %.2f " , book[i].bookNo , book[i] . bookName , total[i]) ;

Write a C program to input a number from the keyboard (n) and f
number is entered , terminate the program.

$$1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}\dots\dots\dots\dots\dots\dots\dots\dots+\frac{1}{n}$$

Question 25

```c
#include <stdio.h>
int main (void)
{
        int n , i ;
        float result = 0 ;

        printf("Enter the number : ");
        scanf("%d" , &n);

        for (i = 1 ; i <= n ; i++)
        {
                result += 1.0 / i ;
        }

        printf("\nanswer is = %.2f" , result);
}
```
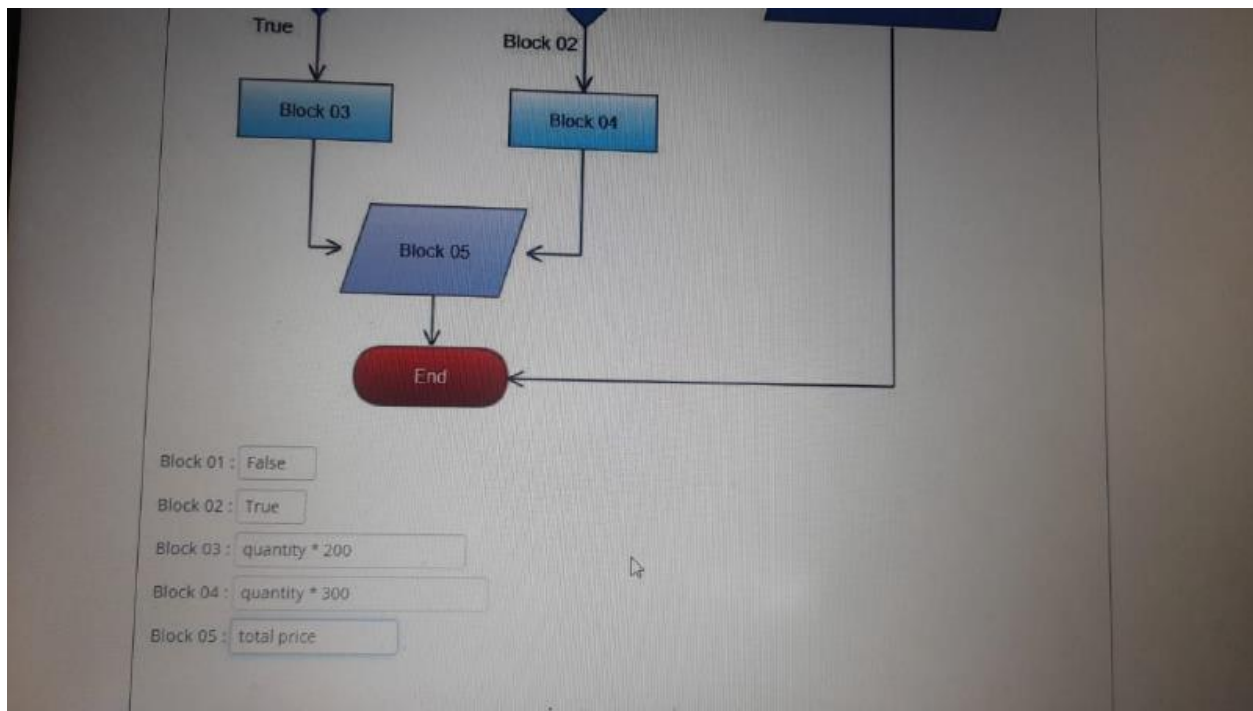
A cafeteria that provides food parcels gets pre orders from customers. The following flowchart is drawn to calculate and dis
amount of a customer.

Write the relevant instructions (Block 01 - 05) in the given space.

Food Parcel Type	Price of a parcel(Rs.)
A	200.00
B	300.00

Question 26

Blook 01 :- False

Blook 02 :- Ture
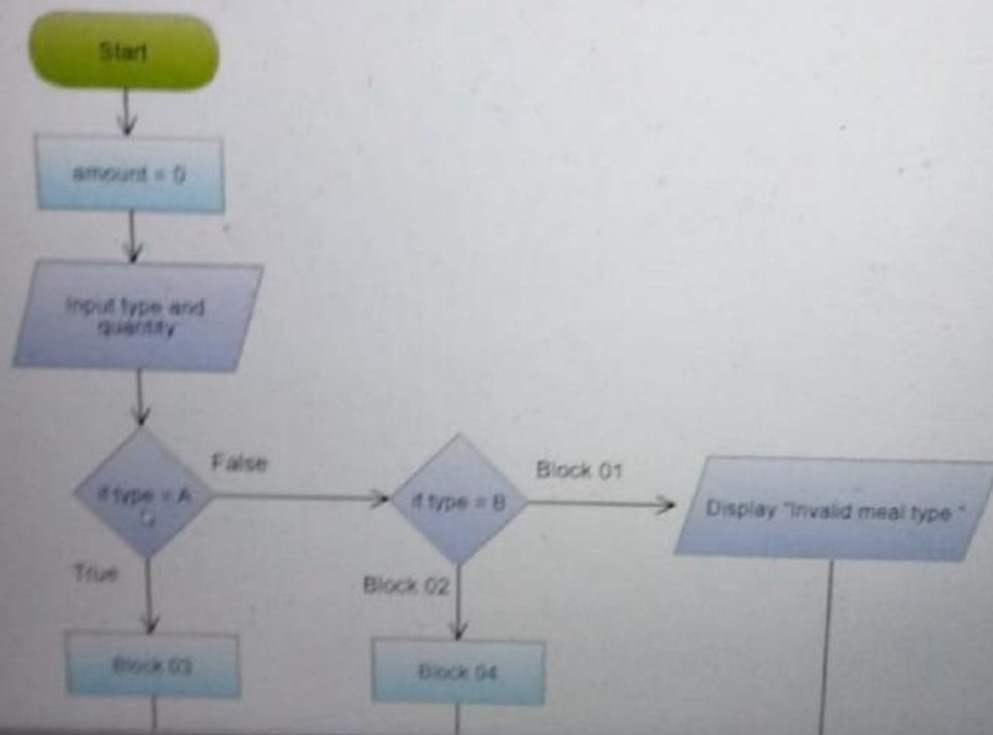
Blook 03 :- ~~quality * 200~~ amount = quantity * 200;

Blook 04 :- ~~quality * 300~~ amount= quantity * 300;

Blook 05 :- ~~total price~~ amount

Question 6

Not yet answered

Marked out of 5.00

Flag question

Write two assert statements to test the following function. This function will return area of trapezoid when it's short ba and height(h) are passed as parameters.

```
double trapezoidArea(double b1, double b2,double h){
        double area;
        area = h * (b1 + b2) / 2.0;
        return area;
}
```

Sample Data

Short base(b1)	Long base(b2)	Height(h)	Area of trapezoid(area)
10.0	15.0	8.0	100.0
28.0	15.0	7.0	150.5

Question 27

assert (fabs (trapezoidArea (10.0 , 15.0 , 8.0) -100.0) < 0.0001) ;
assert (fabs (trapezoidArea (28.0 , 15.0 , 7.0) -150.5) < 0.0001) ;

Question 4
Not yet answered
Marked out of
5.00
⚑ Flag question

Following C program is used to read numbers from a file called "number.dat" that is shown below.

number.dat

2 4 6 8

Furthermore, this program allows to enter another number from the key board and store it in the "number.dat" file, if the file does not already have that number and it is an even number. If the number exist in the file or if it is an odd number, display an error message. (Assume the new number is >0).

Fill the missing words/statements in following C program.

```c
#include <stdio.h>
int main( void)
{
        int number, newNumber;
        printf("Enter Number: ");
        scanf("%d", &newNumber);

        FILE *numPtr;
        numPtr = fopen("number.dat",        );
        if(numPtr == NULL)
        {
                printf("File could not be opened \n");
                return -1;
        }
}
```

```c
int number, newNumber;
printf("Enter Number: ");
scanf("%d", &newNumber);

FILE *numPtr;
numPtr = fopen("number.dat", r+        );
if(numPtr == NULL)
{
        printf("File could not be opened \n");
        return -1;
}

fscanf(numPtr , "%d", &number);
while(!feof( numPtr    ))
{
    if( (number == newNumber)  || ( number        % 2 == 1))
    {
        printf("Invalid Number.");
        return -1;
    }
        fscanf     (numPtr , "%d", &number);
}

fprintf(numPtr,"%d ", number      );
fclose(numPtr);
return 0;
}
```

Question 28

01 :- "a+ "
02 :- numPtr
03 :- newNumber
04 :- fscanf
05 :- newNumber