MODULE-1

Q.NO:01 **DATE:**

Question:

Write a C program to find the ASCII value of a given character.
For example:

Input	Result
a	ASCII value of a is 97

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input a character from the user.
2. Convert the character to its ASCII value by directly printing it as an integer.
3. Display the ASCII value of the character.

Program:

```
#include <stdio.h>
int main(){
    char a ;
    scanf("%c",&a);
    printf("ASCII value of %c is %d",a,a);
    return 0;

}
```

Output:

	Input	Expected	Got	
✔	a	ASCII value of a is 97	ASCII value of a is 97	✔
✔	1	ASCII value of 1 is 49	ASCII value of 1 is 49	✔
✔	?	ASCII value of ? is 63	ASCII value of ? is 63	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Result:

Thue the required program is written and executed successfully

Q.NO:02 **DATE:**

Question:

Write a C Program to print prime numbers(2,3,5,7) into words using the switch statement (EX. 2-TWO, 7-SEVEN)

For example:

Input	Result
2	TWO
6	plz enter valid prime number

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input a number from the user.
2. Use a `switch` statement to match the number with prime values (2, 3, 5, 7).
3. For each case, print the word representation (e.g., 'TWO' for 2).
4. If the input is not a prime number, print an error message.

Program:

```
#include <stdio.h>
int main() {
   int num;

   scanf("%d", &num);

   switch(num) {
      case 2:
         printf("TWO\n");
         break;
      case 3:
         printf("THREE\n");
         break;
      case 5:
         printf("FIVE\n");
         break;
      case 7:
         printf("SEVEN\n");
         break;
      default:
         printf("plz enter valid prime number\n");
```

```
            break;
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	2	TWO	TWO	✔
✔	7	SEVEN	SEVEN	✔
✔	6	plz enter valid prime number	plz enter valid prime number	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:03 **DATE:**

Question:

Write a C program to calculate total, average and percentage of six subjects.

For example:

Input	Result
98 87 76 65 77 98	Total marks = 501.00 Average marks = 83.50 Percentage = 83.50

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Prompt the user to input six marks for subjects.
2. Calculate the total by adding the marks of all six subjects.
3. Compute the average by dividing the total by 6.
4. Calculate the percentage by multiplying the average by 100.
5. Print the total, average, and percentage.

Program:

```
#include <stdio.h>
int main(){
   float m1,m2,m3,m4,m5,m6,total,average,percentage;

   scanf("%f %f %f %f %f %f",&m1,&m2,&m3,&m4,&m5,&m6);

   total=m1+m2+m3+m4+m5+m6;
   average=total/600;
   percentage=average*100;

   printf("Total marks = %.2f",total);
   printf("\nAverage marks = %.2f",percentage);
   printf("\nPercentage = %.2f",percentage);
   return 0 ;
}
```

Output:

	Input	Expected	Got	
✔	98 87 76 65 77 98	Total marks = 501.00 Average marks = 83.50 Percentage = 83.50	Total marks = 501.00 Average marks = 83.50 Percentage = 83.50	✔
✔	78 65 100 67 56 88	Total marks = 454.00 Average marks = 75.67 Percentage = 75.67	Total marks = 454.00 Average marks = 75.67 Percentage = 75.67	✔
✔	98 98 97 100 88 77	Total marks = 558.00 Average marks = 93.00 Percentage = 93.00	Total marks = 558.00 Average marks = 93.00 Percentage = 93.00	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:04 **DATE:**

Question:

Write a C program to read three values A, B, C, and print which one is largest or all are equal using an else-if conditional statement.

For example:

Input	Result
10 12 8	B is largest

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input three numbers (A, B, C) from the user.
2. Use `if-else` statements to compare the numbers.
3. If A is greater than both B and C, print 'A is largest.'
4. If B is greater than both A and C, print 'B is largest.'
5. If C is greater than both A and B, print 'C is largest.'
6. If all three numbers are equal, print 'A, B, and C are equal.'

Program:

```
#include <stdio.h>
int main()
{
   int a,b,c;
   scanf("%d %d %d",&a,&b,&c);
   if((a>b)&&(a>c)){
      printf("A is largest");
   }
   else if((a==b)&&(b==c)){
      printf("A, B, C are equal");
   }
   else if(b>c){
      printf("B is largest");

   }
   else{
      printf("C is largest");
   }
   return 0;
```

}

Output:

	Input	Expected	Got	
✔	10 12 8	B is largest	B is largest	✔
✔	12 10 8	A is largest	A is largest	✔
✔	10 12 14	C is largest	C is largest	✔
✔	10 10 10	A, B, C are equal	A, B, C are equal	✔
✔	5 9 7	B is largest	B is largest	✔
✔	6 4 2	A is largest	A is largest	✔
✔	1 1 1	A, B, C are equal	A, B, C are equal	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

MODULE-2

Q.NO:01 **DATE:**

Question:

Write a C Program to print 1 to n numbers in reverse order.

For example:

Input	Result
5	5 4 3 2 1

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input an integer `n` from the user.
2. Use a `for` loop, starting from `n` and decrementing until 1.
3. Print each number in the loop, separated by spaces.

Program:

```
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    for(int i = n; i >= 1; i--) {
        printf("%d ", i);
    }
    printf("\n");
    return 0;
}
```

Output:

	Input	Expected	Got	
✔	5	5 4 3 2 1	5 4 3 2 1	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:02 **DATE:**

Question:

Write a C program for the following pattern:

1

2 6

3 7 10

4 8 11 13

5 9 12 14 15

Aim:

To write a c program to print the result for the given question

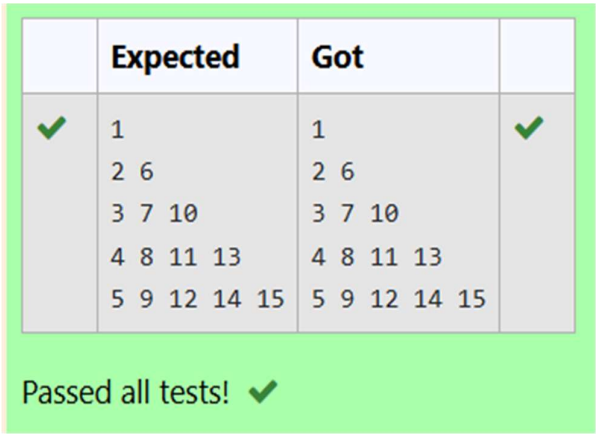
Algorithm:

1. Set the number of rows `n` (usually predefined or input by the user).
2. For each row, calculate the first value to be printed.
3. Use a nested loop to print values in increasing order based on row requirements.
4. Print each row and move to the next line after each iteration.

Program:

```
#include <stdio.h>

int main() {
    int n = 5;
    int value;

    for (int i = 1; i <= n; i++) {
        value = i;

        for (int j = 1; j <= i; j++) {
            printf("%d ", value);
            value = value + (n - j);
        }

        printf("\n");
    }
    return 0;
}
```

Output:



	Expected	Got	
✔	1 2 6 3 7 10 4 8 11 13 5 9 12 14 15	1 2 6 3 7 10 4 8 11 13 5 9 12 14 15	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:03 **DATE:**

Question:

Write a C program to generate Fibonacci sequence of n numbers using function without return type & without arguments.

For example:

Input	Result
5	0 1 1 2 3

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input `n` to define the length of the Fibonacci sequence.
2. Initialize the first two terms of the sequence (0 and 1).
3. Use a loop to generate subsequent terms by summing the last two terms.
4. Print each term until `n` terms are reached.

Program:

```
#include <stdio.h>
int n;

void generateFibonacci() {
    int a = 0, b = 1, next;

    if (n > 0) printf("%d ", a);
    if (n > 1) printf("%d ", b);

    for (int i = 2; i < n; i++) {
        next = a + b;
        printf("%d ", next);
        a = b;
        b = next;
    }
    printf("\n");
}

int main() {
    scanf("%d", &n);
    generateFibonacci();
    return 0;
}
```

Output:

	Input	Expected	Got	
✔	5	0 1 1 2 3	0 1 1 2 3	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:04 **DATE:**

Question:

Write a C program to display n (input from user) number of multiplication table vertically using for loop?

For example:

Input	Result
5	1 2 3 4 5 2 4 6 8 10 3 6 9 12 15 4 8 12 16 20 5 10 15 20 25
2	1 2 2 4

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input a number `n` for the multiplication table.
2. Use nested loops where each row represents the multiplication of one number by all numbers from 1 to `n`.
3. Print each product in the row, then move to the next line.

Program:

```
#include <stdio.h>

int main() {
    int n;
    scanf("%d", &n);

    // Loop through each row of the multiplication table
    for (int i = 1; i <= n; i++) {
        // Loop through each column and print the product of the row and column number
        for (int j = 1; j <= n; j++) {
            printf("%d ", i * j);
        }
        printf("\n");  // Move to the next line after each row is printed
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	5	1 2 3 4 5 2 4 6 8 10 3 6 9 12 15 4 8 12 16 20 5 10 15 20 25	1 2 3 4 5 2 4 6 8 10 3 6 9 12 15 4 8 12 16 20 5 10 15 20 25	✔
✔	2	1 2 2 4	1 2 2 4	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

MODULE-3

Q.NO:01 **DATE:**

Question:

write a program to check whether the given date is valid or not using function with return type with arguments?

Note:DD/MM/YYYY

For example:

Input	Result
45/02/20 0	Year is not valid.

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input date as day, month, and year.
2. Check if the year is valid (e.g., 1000–9999).
3. Verify the month is between 1 and 12.
4. Check day validity based on month and leap year rules.
5. Print whether the date is valid or invalid.

Program:

```
#include <stdio.h>

int is_leap_year(int year) {
    return (year % 400 == 0) || (year % 100 != 0 && year % 4 == 0);
}

int is_valid_date(int day, int month, int year) {
    // Check the validity of the year
    if (year < 1000 || year > 9999) {
        printf("Year is not valid.\n");
        return 0;
    }

    // Check the validity of the month
    if (month < 1 || month > 12) {
        printf("Month is not valid.\n");
        return 0;
    }
```

```
    // Array storing the number of days in each month
    int days_in_month[] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};

    // Adjust for leap year
    if (is_leap_year(year)) {
        days_in_month[1] = 29;
    }
    // Check the validity of the day
    if (day < 1 || day > days_in_month[month - 1]) {
        printf("Day is invalid.\n");
        return 0;
    }
    // If all checks passed
    return 1;
}

int main() {
    int day, month, year;
    scanf("%d/%d/%d", &day, &month, &year);

    if (is_valid_date(day, month, year)) {
        printf("Date is valid.\n");
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	45/02/200	Year is not valid.	Year is not valid.	✔
✔	12/15/2000	Month is not valid.	Month is not valid.	✔
✔	45/12/2000	Day is invalid.	Day is invalid.	✔
✔	12/12/1990	Date is valid.	Date is valid.	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:02 **DATE:**

Question:

C Program to print Armstrong Numbers between 1 and 500

Aim:

To write a c program to print the result for the given question

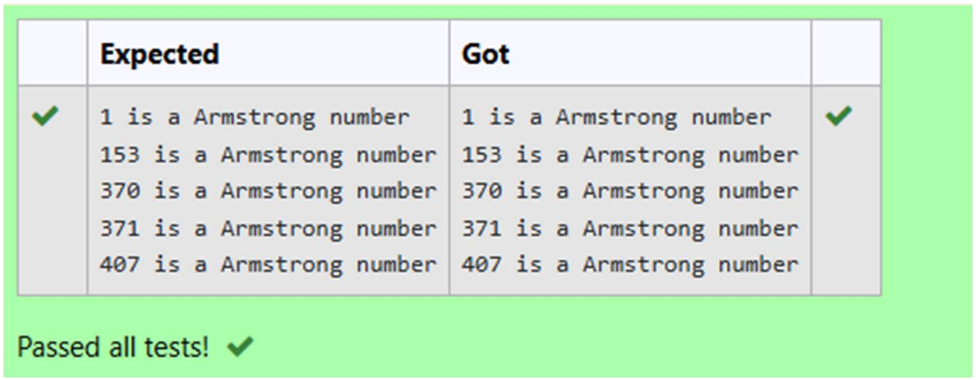
Algorithm:

1. Loop through numbers from 1 to 500.
2. For each number, separate its digits and calculate the sum of each digit cubed.
3. If the sum equals the original number, it is an Armstrong number; print it.

Program:

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

int main() {
    int num, originalNum, remainder, result;

    for (num = 1; num <= 500; num++) {
        originalNum = num;
        result = 0;

        while (originalNum != 0) {
            remainder = originalNum % 10;
            result += pow(remainder, 3);
            originalNum /= 10;
        }

        if (result == num) {
            printf("%d is a Armstrong number\n", num);
        }
    }

    return 0;
}
```

Output:



	Expected	Got	
✔	1 is a Armstrong number 153 is a Armstrong number 370 is a Armstrong number 371 is a Armstrong number 407 is a Armstrong number	1 is a Armstrong number 153 is a Armstrong number 370 is a Armstrong number 371 is a Armstrong number 407 is a Armstrong number	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:03 **DATE:**

Question:

Write a C program to read the elements of the n x n matrix and print the elements of last column of the matrix in the reverse order

For example:

Input	Result
3 100 200 300 400 500 600 700 800 900	a[2][2] is 900 a[1][2] is 600 a[0][2] is 300

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input `n` (size of an n x n matrix) and the elements of the matrix.
2. Traverse the last column of the matrix in reverse order.
3. Print each element from the last column, starting from the bottom row to the top.

Program:

```
#include <stdio.h>

int main() {
    int n;

    scanf("%d", &n);

    if (n <= 0) {
        printf("Invalid dimension.\n");
        return 1;
    }

    int matrix[n][n];

    for (int i = 0; i < n; i++) {
        for (int j = 0; j < n; j++) {
            scanf("%d", &matrix[i][j]);
        }
    }
```

```
    for (int i = n - 1; i >= 0; i--) {
        printf("a[%d][%d] is %d\n", i, n - 1, matrix[i][n - 1]);
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	2 10 20 30 40	a[1][1] is 40 a[0][1] is 20	a[1][1] is 40 a[0][1] is 20	✔
✔	3 100 200 300 400 500 600 700 800 900	a[2][2] is 900 a[1][2] is 600 a[0][2] is 300	a[2][2] is 900 a[1][2] is 600 a[0][2] is 300	✔
✔	3 1 3 5 7 9 11 13 15 17	a[2][2] is 17 a[1][2] is 11 a[0][2] is 5	a[2][2] is 17 a[1][2] is 11 a[0][2] is 5	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:04 **DATE:**

Question:

write a C program to replace all odd elements by 'O' in one dimensional array

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input the size of an array `n` and its elements.
2. Loop through each element in the array.
3. If an element is odd, replace it with 'O' while printing; otherwise, print the element.

Program:

```
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    int arr[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    for (int i = 0; i < n; i++) {
        if (arr[i] % 2 != 0) {
            printf("O ");
        } else {
            printf("%d ", arr[i]);
        }
    }
    printf("\n");

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	10 5 6 4 12 19 121 1 7 9 63	0 6 4 12 0 0 0 0 0 0	0 6 4 12 0 0 0 0 0 0	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

MODULE-4

Q.NO:01 **DATE:**

Question:

Write a C program to break the 50012 into smallest possible number of bank notes. (Note: The possible banknotes are 100, 50, 20, 10, 5, 2).

For example:

Input	Result
-	There are: 500 Note(s) of 100.00 0 Note(s) of 50.00 0 Note(s) of 20.00 1 Note(s) of 10.00 0 Note(s) of 5.00 1 Note(s) of 2.00

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Define an amount and available note denominations (100, 50, 20, 10, 5, 2).
2. For each denomination, calculate the count of notes by dividing the amount by the note value.
3. Subtract the total value of those notes from the amount and continue to the next denomination.
4. Print the count of each note type.

Program:

```
#include <stdio.h>
int main() {
        int amt=50012, total;
        total = (int)amt/100;
        printf("There are: ");
        printf("\n%d Note(s) of 100.00\n", total);
        amt = amt-(total*100);
        total = (int)amt/50;
        printf("%d Note(s) of 50.00\n", total);
        amt = amt-(total*50);
        total = (int)amt/20;
        printf("%d Note(s) of 20.00\n", total);
        amt = amt-(total*20);
        total = (int)amt/10;
```

```
        printf("%d Note(s) of 10.00\n", total);
        amt = amt-(total*10);
        total = (int)amt/5;
        printf("%d Note(s) of 5.00\n", total);
        amt = amt-(total*5);
        total = (int)amt/2;
        printf("%d Note(s) of 2.00\n", total);
        amt = amt-(total*2);
        return 0;
}
```

Output:

	Input	Expected	Got	
✔	-	There are: 500 Note(s) of 100.00 0 Note(s) of 50.00 0 Note(s) of 20.00 1 Note(s) of 10.00 0 Note(s) of 5.00 1 Note(s) of 2.00	There are: 500 Note(s) of 100.00 0 Note(s) of 50.00 0 Note(s) of 20.00 1 Note(s) of 10.00 0 Note(s) of 5.00 1 Note(s) of 2.00	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:02 **DATE:**

Question:

Input the three angles of Triangle from the user and check whether a triangle can be formed by the given value for the angles using if-else?

For example:

Input	Result
20 30 40	The triangle is not valid.

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input three angles of a triangle.
2. Check that each angle is greater than 0.
3. Verify that the sum of the angles is exactly 180.
4. Print if the triangle is valid or invalid based on the checks.

Program:

```
#include <stdio.h>
int main() {

    int angle1, angle2, angle3;

    scanf("%d %d %d", &angle1, &angle2, &angle3);

    // Check if the angles can form a valid triangle
    if (angle1 > 0 && angle2 > 0 && angle3 > 0 && (angle1 + angle2 + angle3 == 180)) {
        printf("The triangle is valid.\n");
    } else {
        printf("The triangle is not valid.\n");
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	20 30 40	The triangle is not valid.	The triangle is not valid.	✔
✔	20 10 30	The triangle is not valid.	The triangle is not valid.	✔
✔	60 60 60	The triangle is valid.	The triangle is valid.	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:03 **DATE:**

Question:

To convert the string 'INDIA' into lowercase

Output:

Lower case String is:india

For example:

Input	Result
INDIA	Lower case String is:india

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input a string from the user.
2. Loop through each character and convert it to lowercase using the `tolower` function.
3. Print the modified string.

Program:

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

int main() {
    char str[100];
    Int len;
    scanf("%s", str);

    len = strlen(str);

    for (int i = 0; str[i]; i++) {
        str[i] = tolower(str[i]);
    }

    printf("Lower case String is:%s\n", str);

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	SAVEETHA	Lower case String is:saveetha	Lower case String is:saveetha	✔
✔	INDIA	Lower case String is:india	Lower case String is:india	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:04 **DATE:**

Question:

Write a C program to convert a string from lowercase to uppercase without using string function using Do-while loop.

For example:

Input	Result
saveetha engineering college	SAVEETHA ENGINEERING COLLEGE
c programming language	C PROGRAMMING LANGUAGE

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input a string from the user.
2. Loop through each character, converting lowercase letters to uppercase by adjusting ASCII values.
3. Print the modified string.

Program:

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

int main() {
    char a[100];
    int x, i = 0;
    scanf("%[^\n]s", a);
    x = strlen(a);
    do {
        printf("%c", toupper(a[i]));
        i++;
    } while (i < x);

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	saveetha engineering college	SAVEETHA ENGINEERING COLLEGE	SAVEETHA ENGINEERING COLLEGE	✔
✔	c programming language	C PROGRAMMING LANGUAGE	C PROGRAMMING LANGUAGE	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

MODULE-5

Q.NO:01 **DATE:**

Question:

Write a C program to print string 'PARROT' using pointer

For example:

Input	Result
PARROT	The entered string is :: PARROT

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input a string.
2. Initialize a pointer to the start of the string.
3. Use the pointer to traverse and print each character until reaching the null terminator.

Program:

```
#include <stdio.h>

int main() {
    char str[100];  // Array to store the input string
    char *ptr;  // Pointer declaration

    scanf("%s", str);

    ptr = str;  // Pointer pointing to the first element of the string

    printf("The entered string is :: ");
    while (*ptr != '\0') {
        printf("%c", *ptr);  // Print the character pointed to by ptr
        ptr++;  // Move the pointer to the next character
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	PARROT	The entered string is :: PARROT	The entered string is :: PARROT	✔
✔	banana	The entered string is :: banana	The entered string is :: banana	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:02 **DATE:**

Question:

Write a C program to swap the values m = 20, n=45 using function pointers (without temporary variable)

Aim:

To write a c program to print the result for the given question

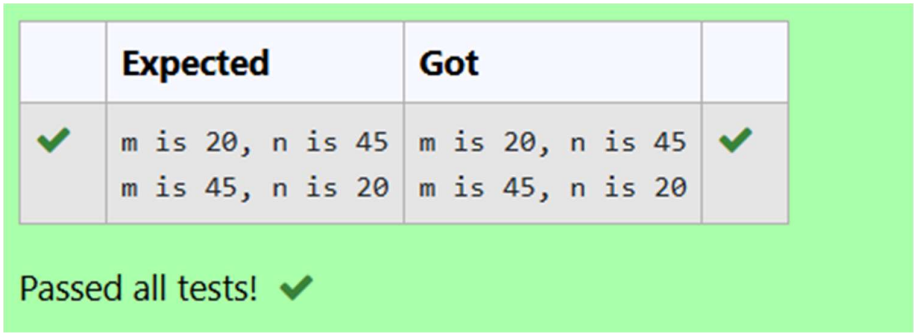
Algorithm:

1. Define a function to swap two numbers using pointers.
2. Add the values and assign the sum to the first variable.
3. Subtract the second variable from the first to get the original value of the first in the second.
4. Subtract again to complete the swap.

Program:

```
#include <stdio.h>
void swap(int *a, int *b) {
    *a = *a + *b;            // m = m + n
    *b = *a - *b;            // n = (m + n) - n = m
    *a = *a - *b;            // m = (m + n) - m = n
}

int main() {
    int m = 20, n = 45;

    void (*swapPtr)(int*, int*) = &swap;

    printf("m is %d, n is %d\n", m, n);

    swapPtr(&m, &n);

    printf("m is %d, n is %d\n", m, n
)
    return 0;
}
```

Output:



	Expected	Got	
✔	m is 20, n is 45 m is 45, n is 20	m is 20, n is 45 m is 45, n is 20	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:03 **DATE:**

Question:

Write a C Program to Find the Multiplication of two m*n matrix

Input:

2 2 (order of matrix)

1 4

2 9

2 8

5 6

Output:

22 32

49 70

For example:

Input	Result
2 2 2 2 3 6 6 1 3 4 8 1	Product of the matrices: 57 18 26 25

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input dimensions of two matrices and their elements.
2. Verify that the number of columns in the first matrix equals the number of rows in the second.
3. Use nested loops to calculate each element in the product matrix.
4. Print the resulting product matrix.

Program:

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

```
int main() {
    int m1, n1, m2, n2;

    scanf("%d %d", &m1, &n1);

    scanf("%d %d", &m2, &n2);

    // Check if multiplication is possible
    if (n1 != m2) {
        printf("The multiplication isn't possible.\n");
        return 1;
    }

    int matrix1[m1][n1], matrix2[m2][n2], result[m1][n2];

    for (int i = 0; i < m1; i++) {
        for (int j = 0; j < n1; j++) {
            scanf("%d", &matrix1[i][j]);
        }
    }

    for (int i = 0; i < m2; i++) {
        for (int j = 0; j < n2; j++) {
            scanf("%d", &matrix2[i][j]);
        }
    }

    // Initialize the result matrix with zeros
    for (int i = 0; i < m1; i++) {
        for (int j = 0; j < n2; j++) {
            result[i][j] = 0;
        }
    }

    // Multiply the matrices
    for (int i = 0; i < m1; i++) {
        for (int j = 0; j < n2; j++) {
            for (int k = 0; k < n1; k++) {
                result[i][j] += matrix1[i][k] * matrix2[k][j];
            }
        }
    }

    // Print the result matrix
    printf("Product of the matrices:\n");
    for (int i = 0; i < m1; i++) {
        for (int j = 0; j < n2; j++) {
            printf("%d ", result[i][j]);
```

```
        }
        printf("\n");
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	2 2 2 2 3 6 6 1 3 4 8 1	Product of the matrices: 57 18 26 25	Product of the matrices: 57 18 26 25	✔
✔	2 3 2 3 1 2 3 1 2 3 2 3 4 2 3 4	The multiplication isn't possible.	The multiplication isn't possible.	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:04 **DATE:**

Question:

Write a program in C to check whether a character is digit or not.

For example:

Input	Result
5	The entered character is a digit.

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input a character.
2. Use `isdigit()` to check if it's a digit.
3. Print whether the character is a digit or not.

Program:

```
#include <stdio.h>
#include <ctype.h>  // For isdigit() function

int main() {
    char ch;

    scanf("%c", &ch);

    // Check if the character is a digit
    if (isdigit(ch)) {
        printf("The entered character is a digit.\n");
    } else {
        printf("The entered character is not a digit.\n");
    }

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	5	The entered character is a digit.	The entered character is a digit.	✔
✔	h	The entered character is not a digit.	The entered character is not a digit.	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

MODULE-6

Q.NO:01 **DATE:**

Question:

write a C program to calculate the area of a triangle for the base 100 and height 50 using pointer

For example:

Input	Result
100 50	area of the triangle with base 100.000000 and height50.000000=2500.000000

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Input base and height of a triangle.
2. Use pointers to pass these values to a function that calculates area as 0.5 * base * height.
3. Print the calculated area.

Program:

```
#include <stdio.h>

void calculate_area(float *base, float *height, float *area) {
    *area = 0.5 * (*base) * (*height);
}

int main() {
    float base , height, area;
    scanf("%f %f",&base,&height);
    // Pointer variables
    float *ptrBase = &base;
    float *ptrHeight = &height;
    float *ptrArea = &area;

    // Calculate the area using pointers
    calculate_area(ptrBase, ptrHeight, ptrArea);

    // Display the result
    printf("area of the triangle with base %.6f and height%.6f=%.6f\n", *ptrBase, *ptrHeight,
*ptrArea);

    return 0;
}
```

Output:

	Input	Expected	Got	
✔	100 50	area of the triangle with base 100.000000 and height50.000000=2500.000000	area of the triangle with base 100.000000 and height50.000000=2500.000000	✔
✔	25 45	area of the triangle with base 25.000000 and height45.000000=562.500000	area of the triangle with base 25.000000 and height45.000000=562.500000	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:02 **DATE:**

Question:

Write a C program to Print 'C PROGRAM' using malloc() and free() .

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Allocate memory dynamically for a string using `malloc`.
2. Copy 'C PROGRAM' into the allocated space and print the string.
3. Use `free` to release the allocated memory.

Program:

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>  // For strcpy()

int main() {
    char *str;

    // Allocating memory using malloc()
    str = (char *)malloc(10 * sizeof(char));

    strcpy(str, "C PROGRAM");
    printf("%s\n", str);

    free(str);

    return 0;
}
```

Output:

	Expected	Got	
✔	C PROGRAM	C PROGRAM	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:03 **DATE:**

Question:

Create a C program to read and display 3 book details using array of structures.

Aim:

To write a c program to print the result for the given question

Algorithm:

1. Define a structure to hold book title, author, publication, and price.
2. Use an array of structures to store data for three books.
3. Input details for each book, then print the details.

Program:

```
#include <stdio.h>
struct stud{
   char title[100],name[100],pub[50];
   float price;
};
int main(){
   struct stud s1[3];
   for (int i=0;i<3;i++){
   scanf("%s %s %s %f",s1[i].title,s1[i].name,s1[i].pub,&s1[i].price);
   }
      for (int i=0;i<3;i++){
   printf("Title: %s\nAuthor: %s\nPublication: %s\nPrice:
%.2f",s1[i].title,s1[i].name,s1[i].pub,s1[i].price);
   }

}
```

Output:

	Input	Expected	Got	
✔	C_Programming Balagurusamy TMH 345 Java Deital BPB 855 Python reema global 840	Title: C_Programming Author: Balagurusamy Publication: TMH Price: 345.00Title: Java Author: Deital Publication: BPB Price: 855.00Title: Python Author: reema Publication: global Price: 840.00	Title: C_Programming Author: Balagurusamy Publication: TMH Price: 345.00Title: Java Author: Deital Publication: BPB Price: 855.00Title: Python Author: reema Publication: global Price: 840.00	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully

Q.NO:04 **DATE:**

Question:

create a structure to read(customer no,name & unit consumption) and store the details of 3 gas customer and calculate the gas bill.

(Units <=50 10rs/Unit, Units > 50 && Units<= 100 20rs/Unit, Units>100 30rs/unit. Reg Fee 50rs and subsidy 10% in total amount for all.)

For example:

Input	Result
1 saveetha 250 2 kannan 460 3 murugan 688	Customer Gas Details 1 250 5445 2 460 11115 3 688 17271

Aim:

To write a c program to print the result for the given question

Algorithm:

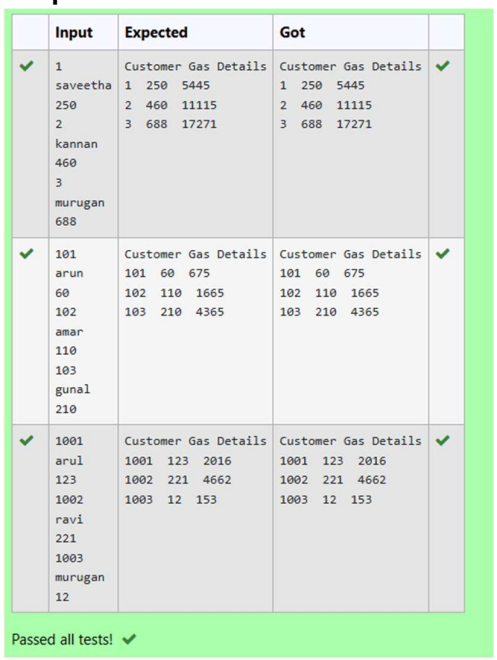
1. Input customer details and the number of units consumed.
2. Based on unit tiers, calculate charges:
   - 10 per unit for <= 50 units
   - 20 per unit for 51–100 units
   - 30 per unit for > 100 units
3. Add a 50-unit registration fee and apply a 10% subsidy to the total.
4. Print customer number, units consumed, and total bill.

Program:

```
#include<stdio.h>
struct gas{
    int no;
    char name[20];
    int unit;
};
int main()
{
    struct gas g[3];
    int i,tot;
```

```
    float res;
    printf("Customer Gas Details\n");
    for(i=0;i<3;i++)
    {
        scanf("%d %s %d",&g[i].no,g[i].name,&g[i].unit);

        if(g[i].unit <=50){
            res=(g[i].unit*10) +50;
            tot=res-(0.1*res);
        }
        else if(g[i].unit > 50 && g[i].unit<= 100 ){
            res=((50*10)+(g[i].unit-50)*20) +50;
            tot=res-(0.1*res);

        }
        else{
            res=((50*10)+(50*20)+(g[i].unit-100)*30) + 50;
            tot=res-(0.1*res);
        }
        printf("%d  %d  %d\n",g[i].no,g[i].unit,tot);
    }

}
```

Output:



	Input	Expected	Got	
✔	1 saveetha 250 2 kannan 460 3 murugan 688	Customer Gas Details 1 250 5445 2 460 11115 3 688 17271	Customer Gas Details 1 250 5445 2 460 11115 3 688 17271	✔
✔	101 arun 60 102 amar 110 103 gunal 210	Customer Gas Details 101 60 675 102 110 1665 103 210 4365	Customer Gas Details 101 60 675 102 110 1665 103 210 4365	✔
✔	1001 arul 123 1002 ravi 221 1003 murugan 12	Customer Gas Details 1001 123 2016 1002 221 4662 1003 12 153	Customer Gas Details 1001 123 2016 1002 221 4662 1003 12 153	✔

Passed all tests! ✔

Result:

Thue the required program is written and executed successfully