



**CENTRAL UNIVERSITY OF RAJASTHAN**

NH-8, Bandarsindri, Tehsil: Kishangarh, District: Ajmer (Raj.)-305817

# PROGRAMMING ASSIGNMENT

COUSE NAME:

INTRODUCTION TO PROGRAMMING

Submitted by:

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Bachelor of Technology

Computer Science and Technology

Q.1. Write a C program to print following series up to the n (Value of n will be given by user):

1 2 4 7 11 16 ..... n

main.c



Save

Run

Output

```
1  #include <stdio.h>
2
3  int main()
4  {
5      int n, i, term = 1, nextTerm = 1;
6
7      printf("Enter the value of n: ");
8      scanf("%d", &n);
9
10     printf("Series: ");
11     for (i = 1; i <= n; i++)
12     {
13         printf("%d ", term);
14         nextTerm = term + i;
15         term = nextTerm;
16     }
17
18     return 0;
19 }
```

/tmp/NQJM5nXSjj.o

Enter the value of n: 8

Series: 1 2 4 7 11 16 22 29

Q.2. Write a C program to calculate the average of n given number.

main.c



Save

Run

Output

```
1  #include <stdio.h>
2
3  int main()
4  {
5      int n, i, sum = 0;
6      float average;
7
8      printf("Enter the number of values: ");
9      scanf("%d", &n);
10
11     printf("Enter %d values:\n", n);
12     for (i = 0; i < n; i++)
13     {
14         int num;
15         scanf("%d", &num);
16         sum += num;
17     }
18
19     average = (float)sum / n;
20     printf("The average is: %.2f\n", average);
21
22     return 0;
23 }
24
```

```
/tmp/OEWYgJ5Lup.o
Enter the number of values: 5
Enter 5 values:
43
545
643
66
21
The average is: 263.60
|
```

Q,3. Write a program that acts as a simple calculator. Prompt the user to enter two numbers and an operator (+, -, \*, /) (Using switch).

```
main.c
1 #include <stdio.h>
2
3 int main() {
4     double num1, num2, result;
5     char operator;
6
7     printf("Enter the first number: ");
8     scanf("%lf", &num1);
9
10    printf("Enter the second number: ");
11    scanf("%lf", &num2);
12
13    printf("Enter the operator (+, -, *, /): ");
14    scanf(" %c", &operator);
15
16    switch (operator) {
17        case '+':
18            result = num1 + num2;
19            printf("Result: %.2lf\n", result);
20            break;
21        case '-':
22            result = num1 - num2;
23            printf("Result: %.2lf\n", result);
24            break;
25        case '*':
26            result = num1 * num2;
27            printf("Result: %.2lf\n", result);
28            break;
29        case '/':
30            if (num2 != 0) {
31                result = num1 / num2;
32                printf("Result: %.2lf\n", result);
33            } else {
34                printf("Error: Division by zero is not allowed.\n");
35            }
36            break;
37        default:
38            printf("Error: Invalid operator.\n");
39            break;
40    }
41
42    return 0;
43 }
```

Output

```
/tmp/TQsvduQRQy.o
Enter the first number: 29
Enter the second number: 5
Enter the operator (+, -, *, /): /
Result: 5.80

/tmp/5WZ3eq7jKk.o
Enter the first number: 421
Enter the second number: 40
Enter the operator (+, -, *, /): #
ERROR!
Error: Invalid operator.

/tmp/1G0grUQmIW.o
Enter the first number: 53
Enter the second number: 0
Enter the operator (+, -, *, /): /
ERROR!
Error: Division by zero is not allowed.
```

Q.4. Write a program that displays a menu with different options (e.g., 1. Add, 2. Subtract, 3. Multiply, 4. Divide). Prompt the user to select an option, and execute the corresponding operation based on the users choice repeat the process until user enter 0 to stop the program.

main.c	Output
<pre>1 #include &lt;stdio.h&gt; 2 3 int main() 4 { 5     int choice; 6     float num1, num2; 7     while (1) 8     { 9         printf("1. Add\n2. Subtract\n3. Multiply\n4. Divide\n0. Exit\n"); 10        printf("Enter your choice: "); 11        scanf("%d", &amp;choice); 12        switch (choice) 13        { 14            case 1: 15                printf("Enter two numbers: "); 16                scanf("%f %f", &amp;num1, &amp;num2); 17                printf("Result: %.2f\n", num1 + num2); 18                break; 19            case 2: 20                printf("Enter two numbers: "); 21                scanf("%f %f", &amp;num1, &amp;num2); 22                printf("Result: %.2f\n", num1 - num2); 23                break; 24            case 3: 25                printf("Enter two numbers: "); 26                scanf("%f %f", &amp;num1, &amp;num2); 27                printf("Result: %.2f\n", num1 * num2); 28                break; 29            case 4: 30                printf("Enter two numbers: "); 31                scanf("%f %f", &amp;num1, &amp;num2); 32                if (num2 == 0) 33                { 34                    printf("Cannot divide by zero.\n"); 35                } 36                else 37                { 38                    printf("Result: %.2f\n", num1 / num2); 39                } 40                break; 41            case 0: 42                printf("Exiting program.\n"); 43                return 0; 44            default: 45                printf("Invalid choice. Please enter a number between 0 and 4.\n"); 46                break; 47        } 48    } 49    return 0; 50 }</pre>	<pre>/tmp/sBQmC906Xk.o 1. Add 2. Subtract 3. Multiply 4. Divide 0. Exit Enter your choice: 6 Invalid choice. Please enter a number between 0 and 4. 1. Add 2. Subtract 3. Multiply 4. Divide 0. Exit Enter your choice: 2 Enter two numbers: 2 78 Result: -76.00 1. Add 2. Subtract 3. Multiply 4. Divide 0. Exit Enter your choice: 4 Enter two numbers: 2 0 Cannot divide by zero. 1. Add 2. Subtract 3. Multiply 4. Divide 0. Exit Enter your choice: 0 Exiting program.  </pre>

Q.5. Write a C program to determine eligibility for admission to a professional course based on the following criteria: Marks in Maths  $\geq 65$  and Marks in Phy  $\geq 55$  and Marks in Chem  $\geq 50$  and Total in all three subject  $\geq 190$  or Total in Math and Physics  $\geq 140$  Display whether the candidate is eligible or not? If candidate is not eligible than give the reason for that as well; Eg. Candidate is not eligible as marks in physics are less than 55.

main.c



Save

Run

Output

```
1  #include <stdio.h>
2  int main()
3  {
4      int math, phy, chem;
5      printf("Enter marks in Maths: ");
6      scanf("%d", &math);
7      printf("Enter marks in Physics: ");
8      scanf("%d", &phy);
9      printf("Enter marks in Chemistry: ");
10     scanf("%d", &chem);
11     if (math >= 65 && phy >= 55 && chem >= 50 && (math + phy + chem) >= 190)
12     {
13         printf("Eligible");
14     }
15     else if ((math + phy) >= 140)
16     {
17         printf("Eligible");
18     }
19     else
20     {
21         if (math < 65)
22         {
23             printf("Not eligible as marks in Maths are less than 65");
24         }
25         else if (phy < 55)
26         {
27             printf("Not eligible as marks in Physics are less than 55");
28         }
29         else if (chem < 50)
30         {
31             printf("Not eligible as marks in Chemistry are less than 50");
32         }
33         else if ((math + phy + chem) < 190)
34         {
35             printf("Not eligible as total marks are less than 190");
36         }
37     }
38     return 0;
39 }
```

/tmp/E6mEEwRNra.o

Enter marks in Maths: 56

Enter marks in Physics: 22

Enter marks in Chemistry: 86

Not eligible as marks in Maths are less than 65

/tmp/cULZBnV500.o

Enter marks in Maths: 34

Enter marks in Physics: 98

Enter marks in Chemistry: 22

Not eligible as marks in Maths are less than 65

/tmp/C8vYfMxazp.o

Enter marks in Maths: 98

Enter marks in Physics: 43

Enter marks in Chemistry: 55

Eligible

/tmp/sARK9owTxb.o

Enter marks in Maths: 87

Enter marks in Physics: 90

Enter marks in Chemistry: 45

Eligible

Q. 6. Write a C program to compute the factorial of any given number.

main.c



Save

Run

Output

```
1  #include <stdio.h>
2  int main()
3  {
4      int n, i, fact = 1;
5      printf("Enter a number: ");
6      scanf("%d", &n);
7
8      for (i = 1; i <= n; i++)
9      {
10         fact = fact * i;
11     }
12
13     printf("Factorial of %d is: %d", n, fact);
14
15     return 0;
16 }
```

/tmp/VTHgnyqoT0.o

Enter a number: 6

Factorial of 6 is: 720

/tmp/JuJk8dpAzp.o

Enter a number: 0

Factorial of 0 is: 1

/tmp/s8UKJEXJYH.o

Enter a number: 1

Factorial of 1 is: 1



Q. 7. Write a C program to check whether number is prime or not prime.

main.c



Save

Run

Output

```
1 #include <stdio.h>
2
3 int main() {
4
5     int n, i, prime = 1;
6     printf("Enter a positive integer: ");
7     scanf("%d", &n);
8
9     // 0 and 1 are not prime numbers
10    if (n == 0 || n == 1) prime = 0;
11
12    for (i = 2; i <= n / 2; ++i) {
13        if (n % i == 0) {
14            prime = 0;
15            break;
16        }
17    }
18
19    if (prime == 1)
20        printf("%d is a prime number.", n);
21    else
22        printf("%d is not a prime number.", n);
23
24    return 0;
25 }
```

```
/tmp/QzQgMGheYZ.o
Enter a positive integer: 13
13 is a prime number.

/tmp/030MS7Q3S6.o
Enter a positive integer: 0
0 is not a prime number.

/tmp/RMRolpXj8H.o
Enter a positive integer: 98
98 is not a prime number.
```