

MODULE: SE – Fundamentals of Programming

Topics Covered

- Control statements
- Conditional Statements

Que.1 Write a C program to accept two integers and check whether they are equal or not

Ans.2

```
#include <stdio.h>
void main()
{
    int int1, int2;
    printf("Input the values for Number1 and Number2 : ");
    scanf("%d %d", &int1, &int2);
    if (int1 == int2)
    {
        printf("Number1 and Number2 are equal\n");
    }
    else
    {
        printf("Number1 and Number2 are not equal\n");
    }
}
```

Que.2 Write a C program to read the value of an integer m and display the value of m is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0

```
#include <stdio.h>
void main()
{
    int m,n;
    printf("Input the value of m :");
    scanf("%d",&m);
    if(m!=0)
    {
        if(m>0)
            n=1;
        else
            n=-1;
    }
    else
        n=0;
    printf("The value of m = %d \n",m);
    printf("The value of n = %d \n",n);
}
```

Que.3 WAP to check if the given year is a leap year or not.

#include <stdio.h>

```
int main() {
    int year;
    printf("Enter a year: ");
    scanf("%d", &year);
    if (year % 4 == 0) {
        if (year % 100 == 0) {
            if (year % 400 == 0) {
                printf("%d is a leap year.\n", year);
            } else {
                printf("%d is not a leap year.\n", year);
            }
        } else {
            printf("%d is a leap year.\n", year);
        }
    } else {
        printf("%d is not a leap year.\n", year);
    }
    return 0;
}
```

Que.4 WAP to make simple calculator (operation include Addition, Subtraction, Multiplication, Division, modulo) using conditional statement

```
#include <stdio.h>

int main() {
    int num1,num2,op,total;
    printf("Enter the first operand\n");
    scanf("%d",&num1);

    printf("Enter the secon operand\n");
    scanf("%d",&num2);

    printf("select the operation\nPress 1 => Addition\nPress 2 => Subtraction\nPress 3 =>
Multiplication\nPress 4 => Division\nPress 5 => Modulo");
    scanf("%d",&op);

    if(op==1){
        total=num1+num2;
        printf("Your Answer is = %d", total);
    }
    if(op==2){
        total=num1-num2;
        printf("Your Answer is = %d", total);
    }
    if(op==3){
        total=num1*num2;
        printf("Your Answer is = %d", total);
    }
    if(op==4){
        total=num1/num2;
        printf("Your Answer is = %d", total);
    }
    if(op==5){
        total=num1%num2;
        printf("Your Answer is = %d", total);
    }

    return 0;
}
```

Que.5 Check Number Is Positive or Negative

```
#include <stdio.h>
int main() {
    int num;
    printf("Enter a number: ");
    scanf("%d", &num);
    if (num <= 0.0) {
        if (num == 0.0)
            printf("You entered 0.");
        else
            printf("You entered a negative number.");
    }
    else
        printf("You entered a positive number.");

    return 0;
}
```

Que.6 Find the Character Is Vowel or Not

```
#include <stdio.h>
int main() {
    char c;
    int lowercase_vowel, uppercase_vowel;
    printf("Enter an alphabet: ");
    scanf("%c", &c);
    lowercase_vowel = (c == 'a' || c == 'e' || c == 'i' || c == 'o' || c == 'u');
    uppercase_vowel = (c == 'A' || c == 'E' || c == 'I' || c == 'O' || c == 'U');
    if (lowercase_vowel || uppercase_vowel)
        printf("%c is a vowel.", c);
    else
        printf("%c is a consonant.", c);
    return 0;
}
```

Que.7 Accept marks from user and check pass or fail

```
#include <stdio.h>
int main() {
    int marks;
    printf("enter marks(0-100) \n");
    scanf("%d", &marks );
    if (marks <= 30){
        printf ("fail\n");
    }
    else if ( marks >30 && marks <= 100)
    { printf(" pass");}
    else { printf(" wrong marks");
    }
    return 0;
}
```

Que.8 WAP to accept the height of a person in centimeters and categorize the person according to their height.

```
#include <stdio.h>
void main()
{
    float PerHeight;
    printf("Input the height of the person (in centimetres) :");
    scanf("%f", &PerHeight);
    if (PerHeight < 150.0)
    {
        printf("The person is Dwarf. \n");
    }
    else if ((PerHeight >= 150.0) && (PerHeight < 165.0))
    {
        printf("The person is average heighted. \n");
    }
    else if ((PerHeight >= 165.0) && (PerHeight <= 195.0))
    {
        printf("The person is taller. \n");
    }
    else
    {
        printf("Abnormal height.\n");
    }
}
```

Que.9 C Program to Check Uppercase or Lowercase or Digit or Special Character

```
#include <stdio.h>
int main()
{
    char ch;
    printf("Enter any character: ");
    scanf("%c", &ch);
    if(ch >= 'A' && ch <= 'Z')
    {
        printf("'%c' is uppercase alphabet.", ch);
    }
    else if(ch >= 'a' && ch <= 'z')
    {
        printf("'%c' is lowercase alphabet.", ch);
    }
    else if(ch >= '0' && ch <= '9')
    {
        printf("'%c' is digit .", ch);
    }
    else
    {
        printf("%c is a special character",ch);
    }

    return 0;
}
```

Que.10 WAP to check whether a number is negative, positive or zero.

```
#include <stdio.h>
int main() {
    int num;
    printf("Enter a number: ");
    scanf("%d", &num);
    if (num <= 0.0) {
        if (num == 0.0)
        {
            printf("You entered 0.");
        }
        else {
            printf("You entered a negative number.");
        }
    }
    else {
        printf("You entered a positive number.");
    }
    return 0; }
```

Que.11 WAP to find number is even or odd using ternary operator

```
#include <stdio.h>
int main()
{
    int n;
    printf("Enter an integer number\n");
    scanf("%d", &n);
    (n % 2 == 0) ?
    (printf("%d is Even number\n", n)) :
    (printf("%d is Odd number\n", n));
    return 0;
}
```

Que.12 WAP to find maximum number among 3 numbers using ternary operator

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, larg;
    printf("Enter first number: ");
    scanf("%d", &a);
    printf("Enter second number: ");
    scanf("%d", &b);
    printf("Enter third number: ");
    scanf("%d", &c);
    larg = (a>b)?((a>c)?a:c):((b>c)?b:c);
    printf("Largest number is: %d", larg);
    getch();
}
```

Que.13 WAP to find minimum number among 3 numbers using ternary operator

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, min;
    printf("Enter first number: ");
    scanf("%d", &a);
    printf("Enter second number: ");
    scanf("%d", &b);
    printf("Enter third number: ");
    scanf("%d", &c);
    larg = (a<b)?((a<c)?a:c):((b<c)?b:c);
    printf("Largest number is: %d", min);
    getch();
}
```


Que.14 WAP to find the largest of three numbers.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, larg;
    printf("Enter first number: ");
    scanf("%d", &a);
    printf("Enter second number: ");
    scanf("%d", &b);
    printf("Enter third number: ");
    scanf("%d", &c);
    larg = (a>b)?((a>c)?a:c):((b>c)?b:c);
    printf("Largest number is: %d", larg);
    getch();
}
```

Que.15 Write a C program to determine eligibility for admission to a professional course based on the following criteria

Eligibility Criteria :

Marks in Maths ≥ 65 and

Marks in Phy ≥ 55 and

Marks in Chem ≥ 50 and

Total in all three subject ≥ 190 or

Total in Maths and Physics ≥ 140 ----- Input the marks obtained in

Physics :65 Input the marks obtained in

Chemistry :51 Input the marks obtained in

Mathematics :72 Total marks of Maths, Physics and

Chemistry : 188 Total marks of Maths and Physics : 137 The candidate is not eligible.

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

```
int main() {
```

```
    int phy, chem, math, total, totalMathPhy;
```

```
    printf("Enter the marks obtained in Physics: ");
```

```
    scanf("%d", &phy);
```

```
    printf("Enter the marks obtained in Chemistry: ");
```

```
    scanf("%d", &chem);
```

```
    printf("Enter the marks obtained in Mathematics: ");
```

```
    scanf("%d", &math);
```

```
    total = phy + chem + math;
```

```
    totalMathPhy = phy + math;
```

```
    if (math  $\geq$  65 && phy  $\geq$  55 && chem  $\geq$  50 && (total  $\geq$  190 ||  
totalMathPhy  $\geq$  140)) {
```

```
        printf("The candidate is eligible.\n");
```

```
    } else {
```

```
        printf("The candidate is not eligible.\n");
```

```
    }
```

```
    return 0;
```

```
}
```

Que.16 Write a C program to read temperature in centigrade and display a suitable message according to the temperature state below:

Temp < 0 then Freezing weather Temp 0-10 then Very Cold weather Temp 10-20 then Cold weather Temp 20-30 then Normal in Temp Temp 30-40 then Its Hot Temp >=40 then Its Very Hot

```
#include <stdio.h>
int main() {
    float temp;
    printf("Enter the temperature in centigrade: ");
    scanf("%f", &temp);

    if (temp < 0) {
        printf("Freezing weather\n");
    } else if (temp >= 0 && temp <= 10) {
        printf("Very Cold weather\n");
    } else if (temp > 10 && temp <= 20) {
        printf("Cold weather\n");
    } else if (temp > 20 && temp <= 30) {
        printf("Normal in Temp\n");
    } else if (temp > 30 && temp <= 40) {
        printf("It's Hot\n");
    } else if (temp >= 40) {
        printf("It's Very Hot\n");
    }
    return 0; }
```

Que.17 Write a C program to check whether a triangle can be formed with the given values for the angles.

```
#include <stdio.h>
int main() {
    int angle1, angle2, angle3, sum;
    printf("Enter the first angle of the triangle: ");
    scanf("%d", &angle1);

    printf("Enter the second angle of the triangle: ");
    scanf("%d", &angle2);

    printf("Enter the third angle of the triangle: ");
    scanf("%d", &angle3);

    sum = angle1 + angle2 + angle3;

    if (sum == 180 && angle1 > 0 && angle2 > 0 && angle3 > 0) {
        printf("The angles can form a triangle.\n");
    } else {
        printf("The angles cannot form a triangle.\n");
    }
    return 0;
}
```

Que.18 Write a C program to calculate profit and loss on a transaction.

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

```
int main() {  
    float cPrice, sellPrice, profOrLoss;  
  
    printf("Enter the cost price: ");  
    scanf("%f", &cPrice);  
  
    printf("Enter the selling price: ");  
    scanf("%f", &sellPrice);  
  
    if (sellPrice > cPrice) {  
        profOrLoss = sellPrice - cPrice;  
        printf("You made a profit of %.2f\n", profOrLoss);  
    } else if (cPrice > sellPrice) {  
        profOrLoss = cPrice - sellPrice;  
        printf("You incurred a loss of %.2f\n", profOrLoss);  
    } else {  
        printf("No profit, no loss.\n");  
    }  
  
    return 0;  
}
```

Que.19 Write a program in C to calculate and print the electricity bill of a given customer. The customer ID, name, and unit consumed by the user should be captured from the keyboard to display the total amount to be paid to the customer. The charge are as follow :

Unit	Charge/unit
upto 350	@1.20
350 and above but less than 600	@1.50
600 and above but less than 800	@1.80
800 and above	@2.00

If bill exceeds Rs. 800 then a surcharge of 18% will be charged and the minimum bill should be of Rs. 256/-

```
#include <stdio.h>
int main() {
    int cID;
    char name[30];
    float units, billAmt;

    printf("Enter Customer ID: ");
    scanf("%d", &cID);
    printf("Enter Customer Name: ");
    scanf(" %[^\\n]s", name);
    printf("Enter units consumed: ");
    scanf("%f", &units);

    if (units <= 350) {
        billAmt = units * 1.20;
    } else if (units < 600) {
        billAmt = 350 * 1.20 + (units - 350) * 1.50;
    } else if (units < 800) {
        billAmt = 350 * 1.20 + 250 * 1.50 + (units - 600) * 1.80;
    } else {
        billAmt = 350 * 1.20 + 250 * 1.50 + 200 * 1.80 + (units - 800) * 2.00;
    }

    if (billAmt > 800) {
        billAmt += billAmt * 0.18;
    }

    if (billAmt < 256) {
        billAmt = 256;
    }

    printf("\\nElectricity Bill\\n");
    printf("Customer ID: %d\\n", cID);
    printf("Customer Name: %s\\n", name);
```

```
printf("Units Consumed: %.2f\n", units);
printf("Total Amount to be Paid: Rs. %.2f\n", billAmt);

return 0;
}
```

Que.20 Write a program in C to read any Month Number in integer and display the number of days for this month.

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

    printf("Enter the month number (1-12): ");
    scanf("%d", &month);

    if (month == 1 || month == 3 || month == 5 || month == 7 || month == 8 ||
        month == 10 || month == 12) {
        printf("31 days\n");
    }
    else if (month == 4 || month == 6 || month == 9 || month == 11)
    {
        printf("30 days\n");
    }
    else if (month == 2)
    {
        printf("28 or 29 days\n");
    }
    else
    {
        printf("Enter valid month number \n");
    }
    return 0;
}
```

Que.21 Write a C program to input basic salary of an employee and calculate its

Gross salary according to following:

Basic Salary <= 10000 : HRA = 20%, DA = 80%

Basic Salary <= 20000 : HRA = 25%, DA = 90%

Basic Salary > 20000 : HRA = 30%, DA = 95%

```
#include <stdio.h>
int main() {
    float basic, HRA, DA, gros;

    printf("Enter the basic salary of the employee: ");
    scanf("%f", &basic);

    if (basic <= 10000) {
        HRA = basic * 0.20;
        DA = basic * 0.80;
    } else if (basic <= 20000) {
        HRA = basic * 0.25;
        DA = basic * 0.90;
    } else {
        HRA = basic * 0.30;
        DA = basic * 0.95;
    }

    gros = basic + HRA + DA;

    printf("Gross Salary of the employee is: %.2f\n", gros);

    return 0;
}
```


Que.22 WAP to input the week number and print week day.

```
int main() {
int weekNO;

printf("Enter the week number (1-7): ");
scanf("%d", &weekNo);

switch (weekNo) {
case 1:
printf("Sunday\n");
break;
case 2:
printf("Monday\n");
break;
case 3:
printf("Tuesday\n");
break;
case 4:
printf("Wednesday\n");
break;
case 5:
printf("Thursday\n");
break;
case 6:
printf("Friday\n");
break;
case 7:
printf("Saturday\n");
break;
default:
printf("Invalid week number! Please enter a number between 1 and
7.\n");
break;
}

return 0;
}
```

Que.23 Accept month number and display month name

```
#include <stdio.h>
#include <stdio.h>
int main() {
    int month;
    printf("Enter the month number (1-12): ");
    scanf("%d", &month);

    switch (month) {
        case 1:
            printf("January\n");
            break;
        case 2:
            printf("February\n");
            break;
        case 3:
            printf("March\n");
            break;
        case 4:
            printf("April\n");
            break;
        case 5:
            printf("May\n");
            break;
        case 6:
            printf("June\n");
            break;
        case 7:
            printf("July\n");
            break;
        case 8:
            printf("August\n");
            break;
        case 9:
            printf("September\n");
            break;
        case 10:
            printf("October\n");
            break;
        case 11:
            printf("November\n");
            break;
        case 12:
            printf("December\n");
            break;
        default:
            printf("Invalid month number! Please enter a number between 1 and 12.\n");
            break;
    } return 0;}
```

Que.24 Accept the input month number and print number of days in that month.

```
#include <stdio.h>

int main() {
    int month;

    printf("Enter the month number (1-12): ");
    scanf("%d", &month);

    if (month == 1 || month == 3 || month == 5 || month == 7 || month == 8 ||
        month == 10 || month == 12) {
        printf("31 days\n");
    }
    else if (month == 4 || month == 6 || month == 9 || month == 11)
    {
        printf("30 days\n");
    }
    else if (month == 2)
    {
        printf("28 or 29 days\n");
    }
    else
    {
        printf("Enter valid month number \n");
    }
    return 0;
}
```

Que.25 Write a C program to input electricity unit charges and calculate total electricity bill according to the given condition:

For first 50 units Rs. 0.50/unit

For next 100 units Rs. 0.75/unit

For next 100 units Rs. 1.20/unit

For unit above 250 Rs. 1.50/unit

An additional surcharge of 20% is added to the bill

```
#include <stdio.h>

int main() {
    float units, billAmt, totalBill;

    printf("Enter the units of electricity consumed: ");
    scanf("%f", &units);

    if (units <= 50) {
        billAmt = units * 0.50;
    } else if (units <= 150) {
        billAmt = 50 * 0.50 + (units - 50) * 0.75;
    } else if (units <= 250) {
        billAmt = 50 * 0.50 + 100 * 0.75 + (units - 150) * 1.20;
    } else {
```

```

        billAmt = 50 * 0.50 + 100 * 0.75 + 100 * 1.20 + (units - 250) * 1.50;
    }

    totalBill = billAmt + (billAmt * 0.20);

    printf("Total electricity bill is: Rs. %.2f\n", totalBill);

    return 0;
}

```

Que.26 WAP to show

i. Monday to Sunday using switch case

```

#include <stdio.h>
int main() {
    int day;
    printf("Enter the day number (1-7): ");
    scanf("%d", &day);

    switch (day) {
        case 1:
            printf("Monday\n");
            break;
        case 2:
            printf("Tuesday\n");
            break;
        case 3:
            printf("Wednesday\n");
            break;
        case 4:
            printf("Thursday\n");
            break;
        case 5:
            printf("Friday\n");
            break;
        case 6:
            printf("Saturday\n");
            break;
        case 7:
            printf("Sunday\n");
            break;
        default:
            printf("Invalid day number! Please enter a number between 1 and 7.\n");
            break;
    }

    return 0;
}

```

ii. Vowel or Consonant using switch case

```
#include <stdio.h>

int main() {
    char ch;

    printf("Enter a character: ");
    scanf(" %c", &ch);
    switch (ch) {
        case 'a':
        case 'e':
        case 'i':
        case 'o':
        case 'u':
        case 'A':
        case 'E':
        case 'I':
        case 'O':
        case 'U':
            printf("%c is a vowel.\n", ch);
            break;
        default:
            if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
                printf("%c is a consonant.\n", ch);
            } else {
                printf("%c is not an alphabetic character.\n", ch);
            }
            break;
    }
    return 0;
}
```