SE - Fundamentals of Programming

MODULE: 1 (Fundamentals)

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Q-1. Display This Information using print a. Your Name b. Your Birth date c. Your Age d. Your Address.

```
#include <stdio.h>

int main (){
printf("Name: Dhaval Bhatti \n");
printf("DOB: 11/10/1986 \n");
printf("Age: 36 \n");
printf("Address: B-101, Swastik Sopan-2, Randesan, Gandhinagar-382007");
return 0;
}
```

Q-2. Write a program to make addition, Subtraction, multiplication, and Division of Two Numbers.

Addition

```
#include <stdio.h>

int main (){
int num1,num2,result;
printf("Please enter Number1");
scanf("%d",&num1);
printf("Please enter Number2");
scanf("%d",&num2);
result=num1+num2;
printf("Here is the result %d+%d=%d", num1,num2,result);
return 0;
}
```

Subtraction

```
#include <stdio.h>

int main (){
int num1,num2,result;
printf("Please enter Number1");
scanf("%d",&num1);
printf("Please enter Number2");
scanf("%d",&num2);
result=num1-num2;
printf("Here is the result %d-%d=%d", num1,num2,result);
return 0;
}
```

Multiplication

```
#include <stdio.h>

int main (){
int num1,num2,result;
printf("Please enter Number1");
scanf("%d",&num1);
printf("Please enter Number2");
scanf("%d",&num2);
result=num1*num2;
printf("Here is the result %dx%d=%d", num1,num2,result);
return 0;
}
```

Division

```
#include <stdio.h>

int main (){
int num1,num2,result;
printf("Please enter Number1");
scanf("%d",&num1);
printf("Please enter Number2");
scanf("%d",&num2);
result=num1/num2;
printf("Here is the result %d/%d=%d", num1,num2,result);
return 0;
}
```

Q-3. Write a program to make a square and cube of number.

Square

```
#include <stdio.h>

int main (){
int num1, result;
printf("Please enter Number = ");
scanf("%d",&num1);
result=num1*num1;
printf("Here is the square of %d =%d", num1,result);
return 0;
}
```

Cube

```
#include <stdio.h>

int main (){
int num1, result;
printf("Please enter Number = ");
scanf("%d",&num1);
result=num1*num1*num1;
printf("Here is the cube of %d =%d", num1,result);
return 0;
}
```

Q-4. Write a program to find the Area of the Circle.

```
#include <stdio.h>

int main (){
float num1, result;
printf("Please enter the redius = ");
scanf("%f",&num1);
result=num1*num1*3.14;
printf("Here is the Area of the Circle = %f", result);
return 0;
}
```

Q-5. Write a program to find the Area of the Triangle

```
#include <stdio.h>

int main (){
float num1,num2,area;
printf("Please enter Base: ");
scanf("%f",&num1);
printf("Please enter Height: ");
scanf("%f",&num2);
area=(num1*num2)/2;
printf("Here is the area of triangle %f", area);
return 0;
}
```

Q-6. Write a program to find the simple Interest.

```
#include <stdio.h>

int main (){
float num1,num2,num3,result;
printf("Please enter the Principle Amount = ");
scanf("%f",&num1);
printf("Please enter the Rate of Interest = ");
scanf("%f",&num2);
printf("Please enter Time Duration = ");
scanf("%f",&num3);
result=(num1*num2*num3)/100;
printf("Simple Interest = %f", result);
return 0;
}
```

Q-7. Write a program to convert temperature from degree centigrade to Fahrenheit.

```
#include <stdio.h>

int main (){
float n1, result;
printf("Please enter temprature in degrees Celsius (-273.15 to 100) = ");
scanf("%f",&n1);
result= (n1*1.8)+32;
printf("It's %f Fahrenheit." ,result);
return 0;
}
```

8. Write a program to calculate the sum of 5 subjects & find the percentage—subject marks entered by the user.

```
#include <stdio.h>

int main (){
float num1,num2,num3,num4,num5,total,percentage;
printf("Please enter Biology marks = ");
scanf("%f",&num1);
printf("Please enter Geography marks = ");
scanf("%f",&num2);
printf("Please enter Mathematics marks = ");
scanf("%f",&num3);
printf("Please enter Political Science marks = ");
scanf("%f",&num4);
printf("Please enter Social Studies marks = ");
scanf("%f",&num5);
total=num1+num2+num3+num4+num5;
percentage=total/5;
printf("Total = %f and Percentage = %f ", total, percentage);
return 0;
}
```

Q-9. Write a Program to show a swap of two No's without using third variable.

```
#include <stdio.h>

int main (){
int num1,num2;
printf("Please enter Number1 = ");
scanf("%d",&num1);
printf("Please enter Number2 = ");
scanf("%d",&num2);
printf("You entered Number1 as %d = The Swap values is %d \n", num1,num2);
printf("You entered Number2 as %d = The Swap values is %d", num2,num1);
return 0;
}
```

Q-10. Write a Program to check the given number is Positive, Negative.

```
#include <stdio.h>

int main (){
int num1;
printf("Please enter Num1: ");
scanf("%d",&num1);

if (num1 > 0)
{
printf("The Entered Number is a Positive Number");
}
if (num1 == 0)
{
printf("You entered 0");
}
else {
printf("The Entered Number is a Negative Number");
}
return 0;
}
```

Q-11. Write a Program to check the given year is leap year or not.

```
#include <stdio.h>

int main (){
int num1;
printf("Please enter the YEAR: ");
scanf("%d",&num1);

if (num1%4 == 0 || num1%400 == 0)
{
printf("Yeah, It's a leap year");
}
else {
printf("It's not a leap year");
}
return 0;
}
```

Q-12. Write a Program to check the given number is prime or not prime.

```
#include <stdio.h>
int main (){
int num1;
printf("Please enter a number: ");
scanf("%d",&num1);
if (num1%2 != 0 && num1%3 != 0)
{
printf("The Entered Number %d is a Prime Number", num1);
}
else {
printf("The Entered Number %d is NOT a Prime Number", num1);
}
return 0;
}
```

Q-13. Write a program to find the Max number from the given three number using Nested If.

```
#include <stdio.h>
int main (){
int num1,num2,num3;
printf("Please enter Num1: ");
scanf("%d",&num1);
printf("Please enter Num2: ");
scanf("%d",&num2);
printf("Please enter Num2: ");
scanf("%d",&num3);
if (num1 > num2)
{
if (num1 > num3)
{
printf("Number1 is Maximum");
}
else {
printf("Number3 is Maximum");
}
}
if (num2 > num3)
{
printf("Number2 is Maximum");
}
else {
printf("Number3 is Maximum");
}
return 0; }
```

Q-14. Write a program to find the Max number from the given three numbers using Ternary Operator

```
#include <stdio.h>

int main (){
   int num1,num2,num3;
   printf("Please enter Num1: ");
   scanf("%d",&num1);
   printf("Please enter Num2: ");
   scanf("%d",&num2);
   printf("Please enter Num3: ");
   scanf("%d",&num3);
   int result = num1 > num2 ? ((num1 > num3) ? printf("Number1 is Maximum") :
printf("Number3 is Maximum")) : ((num2 > num3) ? printf("Number2 is Maximum") :
printf("Number3 is Maximum"));
   return 0; }
```

Q-15. Write a program to find the Max number from the given three number using Nested If

```
#include <stdio.h>
int main (){
int num1,num2,num3;
printf("Please enter Num1: ");
scanf("%d",&num1);
printf("Please enter Num2: ");
scanf("%d",&num2);
printf("Please enter Num2: ");
scanf("%d",&num3);
if (num1 > num2)
{
if (num1 > num3)
{
printf("Number1 is Maximum");
}
else {
printf("Number3 is Maximum");
}
}
if (num2 > num3)
{
printf("Number2 is Maximum");
}
else {
printf("Number3 is Maximum");
} return 0; }
```

Q-16. Write a program user enter the 5 subjects mark. You have to make a total and find the percentage. percentage > 75 you have to print “Distinction” percentage > 60 and percentage <= 75 you have to print “First class” percentage >50 and percentage <= 60 you have to print “Second class” percentage > 35 and percentage <= 50 you have to print “Pass class” Otherwise print “Fail”

```
#include <stdio.h>
int main (){
float num1,num2,num3,num4,num5,total,percentage;
printf("Please enter Biology marks = ");
scanf("%f",&num1);
printf("Please enter Geography marks = ");
scanf("%f",&num2);
printf("Please enter Mathematics marks = ");
scanf("%f",&num3);
printf("Please enter Political Science marks = ");
scanf("%f",&num4);
printf("Please enter Social Studies marks = ");
scanf("%f",&num5);
total=num1+num2+num3+num4+num5;
percentage=total/5;
printf("Total = %f and Percentage = %f \n", total, percentage);
if ((percentage > 75))
{
printf("Grade: Distinction");
}
else if ((percentage <= 75 && percentage > 60))
{
printf("Grade: First Class");
}
else if (percentage <= 60 && percentage > 50)
{
printf("Grade: Second Class");
}
else if (percentage <= 50 && percentage > 35)
{
printf("Grade: Pass Class");
}
else
{
printf("Grade: Failed");
}
return 0;
}
```

Q-17. Write Program use switch statement. Display Monday to Sunday

```
#include <stdio.h>

int main (){
int n1;
printf("Please enter the weekday (1 to 7) = ");
scanf("%d",&n1);
switch (n1)
{
case 1 /* constant-expression */:
printf("%d is a Monday", n1); /* code */
break;

case 2 /* constant-expression */:
printf("%d is a Tuesday", n1); /* code */
break;

case 3 /* constant-expression */:
printf("%d is a Wednesday", n1); /* code */
break;

case 4 /* constant-expression */:
printf("%d is a Tursday", n1); /* code */
break;

case 5 /* constant-expression */:
printf("%d is a Friday", n1); /* code */
break;

case 6 /* constant-expression */:
printf("%d is a Saturday", n1); /* code */
break;

case 7 /* constant-expression */:
printf("%d is a Sunday", n1); /* code */
break;
default:
printf("Invalid entry! PLease enter between 1 to 7 only.");
break;
}
return 0;
}
```

Q-18. Write a Program of Addition, Subtraction ,Multiplication and Division using Switch case.(Must Be Menu Driven)

```
#include <stdio.h>

int main (){
float n1, n2;
int s1;
printf("Welcome to Switch Based Program.\n");
printf("1. Addition \n");
printf("2. Substraction \n");
printf("3. Multiplication \n");
printf("4. Division \n");
printf("Please select from (1-4) to start a program = ");
scanf("%d",&s1);
printf("Please enter Number1 = ");
scanf("%f",&n1);
printf("Please enter Number2 = ");
scanf("%f",&n2);
switch (s1)
{
case 1 /* Addition */:
printf("Addition of %f+%f = %f", n1,n2, n1+n2); /* code */
break;

case 2 /* Substraction */:
printf("Substraction of %f-%f = %f", n1,n2, n1-n2); /* code */
break;

case 3 /* Multiplication */:
printf("Multiplication of %fx%f = %f", n1,n2, n1*n2); /* code */
break;

case 4 /* Division */:
printf("Division of %f/%f = %f", n1,n2, n1/n2); /* code */
break;
default:
printf("Invalid entry! PLease enter between 1 to 4 only.");
break;
}
return 0;
}
```

Q-19. Write a program of to find out the Area of Triangle, Rectangle and Circle using If Condition.(Must Be Menu Driven)

```
#include <stdio.h>

int main (){
float n1, n2, result;
int s1;
printf("Welcome to the Area Finding Program.\n");
printf("1. Area of Triangle \n");
printf("2. Area of Rectangle \n");
printf("3. Area of Circle \n");
printf("Please select from (1-3) to start a program = ");
scanf("%d",&s1);
if (s1 == 1)
{
printf("Please enter Height = ");
scanf("%f",&n1);
printf("Please enter Base = ");
scanf("%f",&n2); /* code */
result = ((n1*n2)/2);
printf("Area of Triangle is = %f", result);
}

else if (s1 == 2)
{
printf("Please enter Length = ");
scanf("%f",&n1);
printf("Please enter Width = ");
scanf("%f",&n2); /* code */
result = ((n1*n2));
printf("Area of Rectangle is = %f", result);
}

else if (s1 == 3)
{
printf("Please enter the redius of a circle = ");
scanf("%f",&n1);
result = ((n1*n1)*3.14);
printf("Area of Rectangle is = %f", result);
}
else {
printf("Invalid entry! PLease enter between 1 to 3 only.");
}
return 0;
}
```

Q-20-a. Looping Programs a. Write a program to print the 1 to 10 using For loop.

```
#include <stdio.h>

int main (){

for (int i = 1; i < 11; i++)
{
printf("%d \n", i); /* code */
}
return 0;
}
```

Q-20-b. Write a Program to print the 51 to 60 using while loop

```
#include <stdio.h>

int main (){
int i;
i = 51;
while (i >= 51 && i <= 60 /* condition */)
{
printf("%d \n", i);
i++; /* code */
}
return 0;
}
```

Q-20-c. write a program to print the 100 to 81 using do....while loop

```
#include <stdio.h>

int main (){
int i;
i = 100;
do
{
printf("%d \n", i);
i--; /* code */
} while (i >= 81 && i <= 100 /* condition */);
return 0;
}
```

Q-20-d .write a program you have to find the factorial of given number.

```
#include <stdio.h>

int main (){
int num, fact;
fact = 1;
printf("Please enter a number to find it's Factorial = ");
scanf("%d", &num);
for (int i = 1; i <= num; i++)
{
fact=fact*i; /* code */
}
printf("He is the Factorial of %d! = %d", num, fact);
return 0;
}
```

Q-20-e. Write a program you have to print the Fibonacci series up to user given number

```
#include <stdio.h>

int main (){
int num1, num2, num3, FS;
num1 = 0;
num2 = 1;
printf("Please enter a number to find Fibonacci Sequence upto that number = ");
scanf("%d", &num3);
printf("Here is the Fibonacci Sequence upto %d = %d , %d ,", num3, num1, num2);
for (int i = 3; i <= num3; i++)
{
FS=num1+num2; /* code */
num1=num2;
num2=FS;
printf(" %d ," ,FS);
}
return 0;
}
```

Q-20-f. write a program you have to print the table of given number.

```
#include <stdio.h>

int main (){
int i, num;
printf("Please enter the number to find sum of numbers = ");
scanf("%d", &num);
i = 1;
printf("The Table of %d \n ", num);
while (i <= 10 /* condition */)
{
printf("%d x %d = %d \n", num,i, num*i);
i++; /* code */
}
return 0;
}
```

Q-20-g. Write a program to print the number in reverse order.

```
#include <stdio.h>

int main (){
int num, result;
printf("Please enter a number = ");
scanf("%d", &num);
while (num > 0 /* condition */)
{
result = num%10; /* For remainder/modulo/to check last number */
printf("%d ", result); /* code */
num=num/10; /* For reverse counting/sequence */
}
return 0;
}
```

Q-20-h .Write a program to find out the max from given number (E.g. No:- 562 Max number is 6)

```c
#include <stdio.h>

int main (){
   int num1,num2,num3,usernum;

   printf("Please enter 3 digit number only= ");
   scanf("%d",&usernum);
   num3=usernum%10;
   usernum=usernum/10;
   num2=usernum%10;
   usernum=usernum/10;
   num1=usernum%10;

   if (num1 > num2)
   {
      if (num1 > num3)
      {
         printf("Number1 is Maximum");
      }
       else {
         printf("Number3 is Maximum");
   }
   }
    if (num2 > num3)
   {
   printf("Number2 is Maximum");
   }
   else {
   printf("Number3 is Maximum");
   }
   return 0;
}
```

Q-20-i. Write a program make a summation of given number

```
#include <stdio.h>

int main (){
int num, result, sum=0;
printf("Please enter a number = ");
scanf("%d", &num);
while (num > 0 /* condition */)
{
result = num%10; /* For remainder/modulo/to check last number */
sum = sum+result;
num=num/10; /* For reverse counting/sequence */
}
printf("The sum of numbers = %d", sum);
return 0;
}
```

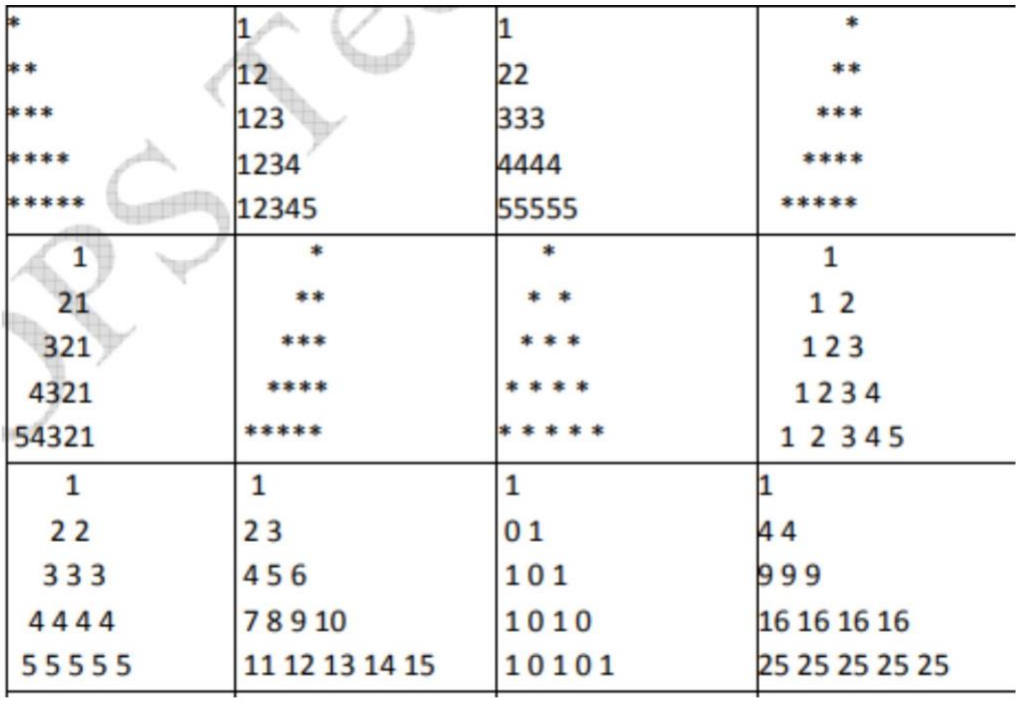
Q-20-j. Write a program you have to make a summation of first and last Digit.

```
#include <stdio.h>

int main (){
int num, lastdigit, firstdigit, original;
printf("Please enter a number (10 onwards) = ");
scanf("%d", &num);
original = num;
lastdigit = num%10; /* For remainder/modulo/to check last number */
while (original > 0 /* condition */)
{
firstdigit=original%10;
original=original/10; /* For reverse counting/sequence */
```

```
}
printf("The sum of first & last digit is = %d ", firstdigit+lastdigit); /* code */
return 0;
}
```

Q-21. Create Below Patterns:



*	1	1	*
**	12	22	**
***	123	333	***
****	1234	4444	****
*****	12345	55555	*****
1	*	*	1
21	**	* *	1 2
321	***	* * *	1 2 3
4321	****	* * * *	1 2 3 4
54321	*****	* * * * *	1 2 3 4 5
1	1	1	1
2 2	2 3	0 1	4 4
3 3 3	4 5 6	1 0 1	9 9 9
4 4 4 4	7 8 9 10	1 0 1 0	16 16 16 16
5 5 5 5 5	11 12 13 14 15	1 0 1 0 1	25 25 25 25 25

```c
#include <stdio.h>

int main()
{
    int row, col;
    for (row = 1; row <= 5; row++)
    {
        for (col = 1; col <= row; col++)
        {
            printf("*");
        }
        printf("\n");
```

```
    }
    return 0;
}
```

```
#include <stdio.h>

int main()
{
    int row, col;
    for (row = 1; row <= 5; row++)
    {
        for (col = 1; col <= row; col++)
        {
            printf("%d",col);
        }
        printf("\n");
    }
    return 0;
}
```

```
#include <stdio.h>

int main()
{
    int row, col;
    for (row = 1; row <= 5; row++)
    {
        for (col = 1; col <= row; col++)
```

```
        {
            printf("%d",row);
        }
        printf("\n");
    }
    return 0;
}
```

```
#include <stdio.h>

int main()
{
    int row, col;
    for (row = 5; row >= 1; row--)
    {

        for (col = 1; (col < row && col >= 1); col++)
        {

            printf(" ");
        }
        for (col = 5; (col >= row && col <= 5); col--)
        {

            printf("*");
```

```
        }

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

```
#include <stdio.h>

int main()
{
    int row, col, num = 5;
    for (row = 1; row <= num; row++)
    {

        for (col = num; (col >= 1); col--)
        {
            if (row >= col)
            {
                printf("%d", col);
            }
            else
                printf(" ");
        }

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

```
#include <stdio.h>

int main()
{
    int row, col, num = 5;
    for (row = 1; row <= num; row++)
    {
```

```
        for (col = num; (col >= 1); col--)
        {
            if (row >= col)
            {
                printf("* ");
            }
            else
                printf(" ");
        }

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

```
#include <stdio.h>

int main()
{
    int row, col, space;
    for (row = 1; row <= 5; row++)
    {

        for (space = 4; space >= row; space--)
        {

            printf(" ");
        }
        for (col = 1; col <= row; col++)
        {

            printf("%d ", col);
        }

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

```
}
```

```
#include <stdio.h>

int main()
{
    int row, col, space;
    for (row = 1; row <= 5; row++)
    {

        for (space = 4; space >= row; space--)
        {

            printf(" ");
        }
        for (col = 1; col <= row; col++)
        {

            printf("%d ", row);
        }

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

```
#include <stdio.h>

int main()
{
    int row, col, num=1;
    for (row = 1; row <= 5; row++)
    {



        for (col = 1; col <= row; col++)
```

```
        {

            printf("%d ", num);
            num++;
        }

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

```
#include <stdio.h>

int main()
{
    int row, col;
    for (row = 1; row <= 5; row++)
    {

        for (col = 0; col < row; col++)
        {

            printf("%d ", (row + col) % 2);
        }

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

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

```c
int main()
{
    int row, col;
    for (row = 1; row <= 5; row++)
    {

        for (col = 1; col <= row; col++)
        {

            printf("%d ", row * row);
        }

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