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SUBJECT NAME: FUNDAMENTALS OF COMPUTING FOR DATA ANALYSIS.

SUBJECT CODE: CSA5779

SLOT NAME: D

C PROGRAM

EXPERIMENT NO:1

EXPERIMENT NAME: Generation of number series.

PROGRAM:

```c
#include <stdio.h>
int main() {
 int n, i;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 printf("Number series: ");
 for (i = 1; i <= n; i++) {
 printf("%d ", i);
 }
 return 0;
}
```

OUTPUT:

```
Enter the value of n: 10
Number series: 1 2 3 4 5 6 7 8 9 10
--------------------------------
```

EXPERIMENT NO:2

EXPERIMENT NAME: Generation of even numbers

PROGRAM:

```c
#include <stdio.h>
int main() {
 int n, i;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 printf("Even number series: ");
 for (i = 2; i <= n; i += 2) {
 printf("%d ", i);
 }
 return 0;
}
```

OUTPUT:

```
Enter the value of n: 10
Even number series: 2 4 6 8 10
```

EXPERIMENT NO:3

EXPERIMENT NAME: Generation of odd numbers.

PROGRAM:

```c
#include <stdio.h>
int main() {
 int n, i;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 printf("Odd number series: ");
 for (i = 1; i <= n; i += 2) {
 printf("%d ", i);
 }
 return 0;
}
```

OUTPUT:

```
Enter the value of n: 7
Odd number series: 1 3 5 7
```

EXPERIMENT NO:4

EXPERIMENT NAME: Generation of Fibonacci series.

PROGRAM

```c
#include <stdio.h>
int main() {
 int n, a, b, next;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 printf("Fibonacci series: ");
 printf("0 1 "); // Print the initial values
 a = 0;
 b = 1;
 next = a + b;
 while (next <= n) {
 printf("%d ", next);
 a = b;
 b = next;
 next = a + b;
 }
 return 0;
}
```

OUTPUT :

```
Enter the value of n: 15
Fibonacci series: 0 1 1 2 3 5 8 13
--------------------------------
```

EXPERIMENT NO:5

EXPERIMENT NAME: Summing up series 1+2+3+4…n

PROGRAM:

```c
#include <stdio.h>
int main() {
 int n, i, sum = 0;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 for (i = 1; i <= n; i++) {
 sum += i;
 }
 printf("Sum of the series: %d\n", sum);
 return 0;
}
```

OUT PUT:

```
Enter the value of n: 5
Sum of the series: 15
```

EXPERIMENT NO:6

EXPERIMENT NAME: Summing up even number series.

PROGRAM:

```c
#include<stdio.h>
int main ()
{
    int i,n,sum=0;
    printf("enter the value of n:");
    scanf("%d",&n);
    for(i=2;i<=n;i+=2){

    sum+=i;
}
   printf("the sum of even number series:%d \n",sum);
   return 0;
}
```

OUT PUT:

```
enter the value of n:10
the sum of even number series:30
```

EXPERIMENT NO:7

EXPERIMENT NAME: Summing up odd number series.

PROGRAM:

```c
#include<stdio.h>
int main (){
    int i, n,sum=0;
        printf("enter the value of n:");
        scanf("%d",&n);
        for(i=1;i<=n;i+=2){
            sum+=i;
        }
        printf("the sum of odd number series:%d \n",sum);
        return 0;
}
```

OUT PUT:

```
enter the value of n:10
the sum of odd number series:25
```

EXPERIMENT NO:8

EXPERIMENT NAME: Summing up 1 – 2 + 3 – 4 + 5…. N

PROGRAM:

```c
#include<stdio.h>
int main (){
    int i,n ,sum=0,sign =0;
    printf("enter the value of n:");
    scanf("%d",&n);
    for(i=1;i<=n;i++){
        if(i% 2 ==0){
            sum -=i;
        } else {
            sum+= i;
        }
        sign *=-1;
    }
    printf("sum of the series: %d \n",sum);
    return 0;
}
```

OUT PUT:

```
enter the value of n:15
sum of the series: 8
```

EXPERIMENT NO:9

EXPERIMENT NAME: Summing up 12 + 22 + 32 + 42….. +n

PROGRAM:

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

int i, n, sum=0;
printf("enter the value of n:");
scanf("%d",&n);
for(i=1;i<=n; i++){
    int term = i*i ;
    sum +=term;
}
printf(" sum of series:%d \n", sum);
return 0;
}
```

```
enter the value of n:10
 sum of series:385
```

EXPERIMENT NO:10

EXPERIMENT NAME: Summing up 22 + 42 + 62 + 82 + ….. n2

PROGRAM:

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

int i, n, sum=0;
printf("enter the value of n:");
scanf("%d",&n);
for(i=2;i<=n; i+=2){
    int term = i*i ;
    sum +=term;
}
printf(" sum of series:%d \n", sum);
return 0;
}
```

OUT PUT:

```
Enter the value of n: 10
Sum of the series: 220
```

EXPERIMENT NO:11

EXPERIMENT NAME: summing up 1^1+2^2+3^3…. n

Program:

```c
#include <stdio.h>
#include <math.h>
int main() {
 int n, i;
 long long sum = 0;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 for (i = 1; i <= n; i++) {
 long long term = pow(i, i);
 sum += term;
 }
 printf("Sum of the series: %lld\n", sum);
 return 0;
}
```

OUT PUT:

```
Enter the value of n: 4
Sum of the series: 288
```

EXPERIMENT NO:12

EXPERIMENT NAME: summing up squares of odd numbers

Program:

```c
#include <stdio.h>
int main() {
 int n, sum = 0;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 for (int i = 1; i <= n; i++) {
 if (i % 2 != 0) {
 sum += (i * i);
 }
 }
 printf("Sum of squares of odd numbers: %d\n", sum);
 return 0;
}
```

OUT PUT:

```
Enter the value of n: 5
Sum of squares of odd numbers: 35
```

EXPERIMENT NO:13

EXPERIMENT NAME: summing of cubes of n numbers

Program:

```c
#include <stdio.h>
int main() {
 int n, i, cube, sum = 0;
 printf("Enter the value of n: ");
 scanf("%d", &n);
 for (i = 1; i <= n; i++) {
 cube = i * i * i;
 sum += cube;
 }
 printf("Sum of cubes of numbers from 1 to %d is: %d \n",sum);
}
```

OUT PUT:

```
Enter the value of n: 5
Sum of cubes of numbers from 1 to 225 is: 0
```

EXPERIMENT NO:14

EXPERIMENT NAME: Product the series (factorial of given number)

Program:

```c
#include <stdio.h>
int main() {
 int n;
 printf("Enter a number: ");
 scanf("%d", &n);
 int product = 1;
 int i;
 for (i = 1; i <= n; i++) {
 product *= i;
 }
 printf("Product series: %d\n", product);
 return 0;
}
```

OUT PUT:

```
Enter a number: 5
Product series: 120
```

EXPERIMENT NO:15

EXPERIMENT NAME: Finding given number is Armstrong or not

Program:

```c
#include <stdio.h>
#include <math.h>
int main() {
 int number, originalNumber, remainder, result = 0, n = 0;
 printf("Enter a number: ");
 scanf("%d", &number);
 originalNumber = number;
 while (originalNumber != 0) {
 originalNumber /= 10;
 ++n;
 }
 originalNumber = number;
 while (originalNumber != 0) {
 remainder = originalNumber % 10;
 result += pow(remainder, n);
 originalNumber /= 10;
 }
 if (result == number) {
 printf("%d is an Armstrong number.\n", number);
 } else {
 printf("%d is not an Armstrong number.\n", number);
 }
 return 0;
}
```

OUT PUT:

```
Enter a number: 123
123 is not an Armstrong number.
```

```
Enter a number: 153
153 is an Armstrong number.
```

EXPERIMENT NO:16

EXPERIMENT NAME: Summing up any n numbers and finding average

Program:

```c
#include<stdio.h>
int main (){
    int n, num,sum=0;
    float average;
    printf("enter the value of n:");
    scanf("%d",&n);
    for(int i=1;i<=n; i++){
    printf("Enter number %d: ", i);
 scanf("%d", &num);
 sum += num;
 }
 average = (float) sum / n;
 printf("Sum = %d\n", sum);
 printf("Average = %.2f\n", average);
 return 0;
    }
```

OUT PUT:

```
enter the value of n:5
Enter number 1: 10
Enter number 2: 15
Enter number 3: 20
Enter number 4: 25
Enter number 5: 30
Sum = 100
Average = 20.00
```

EXPERIMENT NO:17

EXPERIMENT NAME: Printing digits of an integer number

Program:

```c
#include <stdio.h>
#include <stdlib.h>
void printDigits(int num) {
 int digit;
 num = abs(num);
 while (num > 0) {
 digit = num % 10;
 printf("%d ", digit);
 num = num / 10;
 }
}
int main() {
 int number;
 printf("Enter an integer number: ");
 scanf("%d", &number);
 printf("Printing digits of the number: ");
 printDigits(number);
 return 0;
}
```

OUT PUT:

```
Enter an integer number: 12345
Printing digits of the number: 5 4 3 2 1
--------------------------------
```

EXPERIMENT NO:18

EXPERIMENT NAME: Summing up the digits of an integer number

Program:

```c
#include <stdio.h>
int main() {
 int number, digit, sum = 0;
 printf("Enter an integer number: ");
 scanf("%d", &number);
 while (number != 0) {
 digit = number % 10;
 sum += digit;
 number /= 10;
 }
 printf("Sum of the digits: %d\n", sum);
 return 0;
}
```

OUT PUT:

```
Enter an integer number: 12345
Sum of the digits: 15
```

EXPERIMENT NO:19

EXPERIMENT NAME: Revering the digits of an integer number

Program:

```c
#include <stdio.h>
int main() {
 int number, remainder, reverse = 0;
 printf("Enter an integer number: ");
 scanf("%d", &number);
 while (number != 0) {
 remainder = number % 10;
 reverse = reverse * 10 + remainder;
 number /= 10;
 }
 printf("Reversed number: %d\n", reverse);
 return 0;
}
```

OUT PUT:

```
Enter an integer number: 12345
Reversed number: 54321
```

EXPERIMENT NO:20

EXPERIMENT NAME: Finding whether the given integer is odd or even

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

OUT PUT:

```
Enter an integer number: 12
12 is an even number.
```

```
Enter an integer number: 13
13 is an odd number.
```

EXPERIMENT NO:21

EXPERIMENT NAME: Finding the given integer is positive or negative.

Program:

```c
#include<stdio.h>
int main(){
int num;
printf("enter an integer:");
scanf("%d",&num);
if("num>0"){
    printf("the numbr is positive.\n");
} else if(num<0){
    printf("the number is negative.\n");
}else{
    printf("the numbeer is negative.\n");
}
return 0;
}
```

Output:

```
enter an integer:10
the numbr is positive.
```

EXPERIMENT NO:22

EXPERIMENT NAME: Swapping two numbers with a temporary variable.

Program:

```c
#include <stdio.h>
int main() {
 int num1, num2, temp;
 printf("Enter two numbers: ");
 scanf("%d %d", &num1, &num2);
 printf("Before swapping: num1 = %d, num2 = %d\n", num1, num2);
 temp = num1;
 num1 = num2;
 num2 = temp;
 printf("After swapping: num1 = %d, num2 = %d\n", num1, num2);
 return 0;
}
```

OUTPUT:

```
Enter two numbers: 5 8
Before swapping: num1 = 5, num2 = 8
After swapping: num1 = 8, num2 = 5
```

EXPERIMENT NO:23

EXPERIMENT NAME: Swapping two numbers without a temporary variable

Program:

```c
#include <stdio.h>
int main() {
 int num1, num2;
 printf("Enter two numbers: ");
 scanf("%d %d", &num1, &num2);
 printf("Before swapping: num1 = %d, num2 = %d\n", num1, num2);
 num1 = num1 ^ num2;
 num2 = num1 ^ num2;
 num1 = num1 ^ num2;
 printf("After swapping: num1 = %d, num2 = %d\n", num1, num2);
 return 0;
}
```

OUTPUT:

```
Enter two numbers: 4 8
Before swapping: num1 = 4, num2 = 8
After swapping: num1 = 8, num2 = 4
```

EXPERIMENT NO:24

EXPERIMENT NAME: Swap 3 numbers a to b, b to c and c to a.

Program:

```c
#include <stdio.h>
int main() {
 int a, b, c, temp;
 printf("Enter the values of a, b, and c: ");
 scanf("%d %d %d", &a, &b, &c);
 printf("Original values: a = %d, b = %d, c = %d\n", a, b, c);
 temp = a;
 a = b;
 b = c;
 c = temp;
 printf("Swapped values: a = %d, b = %d, c = %d\n", a, b, c);
 return 0;
}
```

OUTPUT:

```
Enter the values of a, b, and c: 10 20 30
Original values: a = 10, b = 20, c = 30
Swapped values: a = 20, b = 30, c = 10
```

EXPERIMENT NO:25

EXPERIMENT NAME: Finding the biggest out of 2 integer numbers

Program:

```c
#include <stdio.h>
int main() {
 int num1, num2, max;
 printf("Enter the values of num1 and num2: ");
 scanf("%d %d", &num1, &num2);
 printf("Original values: num1 = %d, num2 = %d\n", num1, num2);
 if (num1 > num2) {
 max = num1;
 } else {
 max = num2;
 }
 printf("The biggest number is: %d\n", max);
 return 0;
}
```

OUTPUT:

```
Enter the values of num1 and num2: 25 10
Original values: num1 = 25, num2 = 10
The biggest number is: 25
```