Experiments

1. ***Write a program to add two integers using functions***
2. ***Write a function to swap the value of two variables***
3. ***Write a program to find biggest of three integers using functions***
4. ***Write a program to calculate area of a circle using function.***
5. ***Write a program, using functions, to find whether a number is even or odd.***
6. ***Write a program to convert time to minutes.***
7. ***Write a program to calculate P(n/r).***
8. ***Write a program to calculate C(n/r).***
9. ***Write a program to sum the series—1/1! + 1/2! + 1/3! + ….. + 1/n!***
10. ***Write a program to sum the series—1/1! + 4/2! + 27/3! + ...***
11. ***Write a program to calculate GCD using recursive functions.***
12. ***Write a program to calculate exp(x,y) using recursive functions.***
13. ***Write a program to print the Fibonacci series using recursion.***
14. ***Add two matrices using function***
15. ***Copy two string using function***
16. ***Find length of a string suing function***
17. ***Sort set of numbers using function***

Experiment 1: Write a program to add two integers using functions.

AIM

Write a program to add two integers using functions

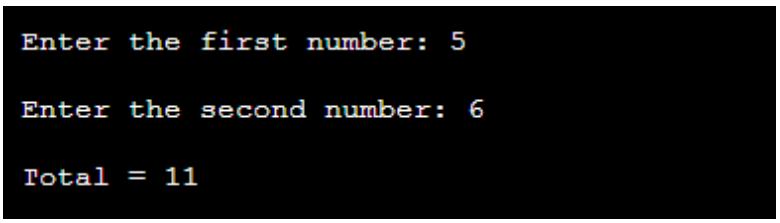
SOURCE CODE

```
//    Program name :        add.c
//    Author   :            Anantha Krishnan R J
//    Date written :        5/10/2021
//    Date complied :       5/10/2021

#include <stdio.h>
int sum(int a, int b);
int main()
{
int num1, num2, total = 0;
printf("\n Enter the first number: ");
scanf("%d", &num1);
printf("\n Enter the second number: ");
scanf("%d", &num2);
total = sum(num1, num2);
printf("\n Total = %d", total);
return 0;
}

int sum (int a, int b)
{
int result;
result = a + b;
```

return result;

}

OUTPUT



Expt 2: Write a function to swap the value of two variables

AIM

Write a function to swap the value of two variables

SOURCE CODE

```
//  Program name :          swap.c
//  Author   :              Anantha Krishnan R J
//  Date written :          1/10/2021
//  Date complied :         1/10/2021
//  Aim of the program: Write a function to swap the
    value of two variables
```

```
#include <stdio.h>

void swap_call_by_val(int, int);

void swap_call_by_ref(int *, int *);

int main()

{

int a=1, b=2, c=3, d=4;

printf("\n In main(), a = %d and b = %d", a, b);

swap_call_by_val(a, b);

printf("\n\n In main(), c = %d and d = %d", c, d);

swap_call_by_ref(&c, &d);


return 0;

}

void swap_call_by_val(int a, int b)

{

int  temp;

temp = a;

a = b;
```

```
b = temp;
printf("\n In function (Call By Value Method) a = %d and b = %d \n", a, b);
}
void swap_call_by_ref(int *c, int *d)
{
int temp;
temp = *c;
*c = *d;
*d = temp;
printf("\n In function (Call By Reference Method) c = %d and d = %d \n", *c, *d);
}
```

OUTPUT

```
In main(), a = 1 and b = 2
In function (Call By Value Method) a = 2 and b = 1


In main(), c = 3 and d = 4
In function (Call By Reference Method) c = 4 and d = 3
```

Expt 3: Write a program to find biggest of three integers using functions

AIM

Write a program to find biggest of three integers using functions

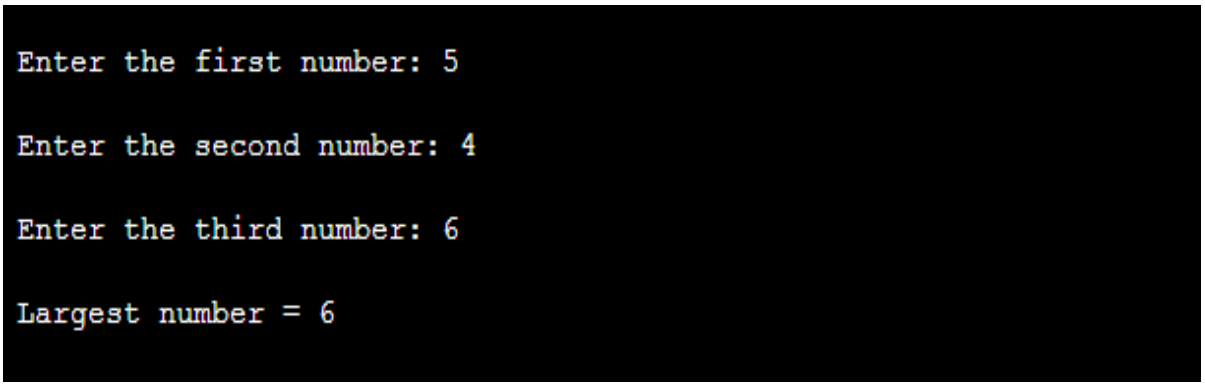
SOURCE CODE

```
// Program name :          comparison.c
// Author :                Anantha Krishnan R J
// Date written :          5/10/2021
// Date complied :         5/10/2021
// Aim of the program : Write a program to find
   biggest of three integers using functions
```

```
#include <stdio.h>

int greater(int a, int b, int c);

int main()

{

int num1, num2, num3, large;

printf("\n Enter the first number: ");

scanf("%d", &num1);

printf("\n Enter the second number: ");

scanf("%d", &num2);

printf("\n Enter the third number: ");

scanf("%d", &num3);

large = greater(num1, num2, num3);

printf("\n Largest number = %d", large);

return 0;

}

int greater(int a, int b, int c)

{
```

```
if(a>b && a>c)
return a;
if(b>a && b>c)
return b;
else
return c;
}
```

OUTPUT



Expt 4: Write a program to calculate area of a circle using function.

AIM

Write a program to calculate area of a circle using function.

SOURCE CODE

//	**Program name :**	**circle_area.c**
//	**Author :**	**Anantha Krishnan R J**
//	**Date written :**	**5/10/2021**
//	**Date complied :**	**5/10/2021**

PROGRAM

```
#include <stdio.h>

float cal_area(float r);

int main()

{

float area, radius;

printf("\n Enter the radius of the circle: ");

scanf("%f", &radius);

area = cal_area(radius);

printf("\n Area of the circle with radius %f = %f", radius, area);

return 0;

}

float cal_area(float radius)

{

return (3.14 * radius * radius);

}
```

OUTPUT

```
Enter the radius of the circle: 5

Area of the circle with radius 5.000000 = 78.500000
```

Expt 5: Write a program, using functions, to find whether a number is even or odd.

AIM

Write a program, using functions, to find whether a number is even or odd.

SOURCE CODE

```
//  Program name :          even_odd.c
//  Author   :              Anantha Krishnan R J
//  Date written :          2/10/2021
//  Date complied :         2/10/2021
```

```
#include <stdio.h>

int evenodd(int);

int main()

{

int num, flag;

printf("\n Enter the number: ");

scanf("%d", &num);

flag = evenodd(num);

if (flag == 1)

printf("\n %d is EVEN", num);

else

printf("\n %d is ODD", num);

return 0;

}

int evenodd(int a)

{

if(a%2 == 0)

return 1;

else
```

return 0;

}

OUTPUT

```
Enter the number: 5

5 is ODD
```

```
Enter the number: 4

4 is EVEN
```

Experiment 6: Write a program to convert time to minutes.

AIM

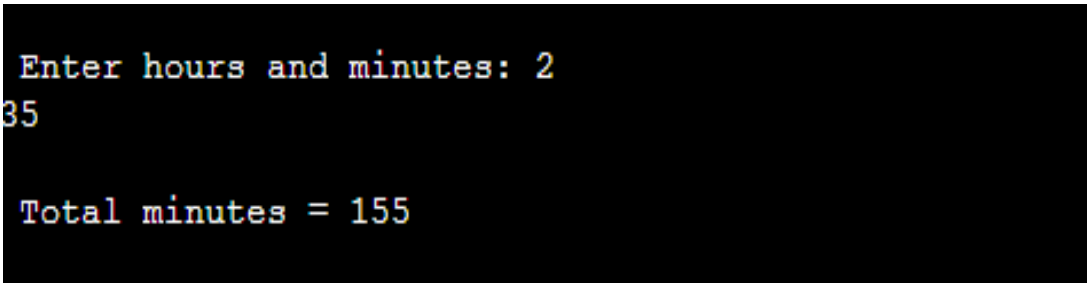
Write a program to convert time to minutes.

SOURCE CODE

```
//  Program name :        minutes.c
//  Author   :            Anantha Krishnan R J
//  Date written :        5/10/2021
//  Date complied :       5/10/2021

#include <stdio.h>
#include <conio.h>
int convert_time_in_mins(int hrs, int minutes);
main()
{
int hrs, minutes, total_mins;
printf("\n Enter hours and minutes: ");
scanf("%d %d", &hrs, &minutes);
total_mins = convert_time_in_mins(hrs, minutes);
printf("\n Total minutes = %d", total_mins);
getch();
return 0;
}
int convert_time_in_mins(int hrs, int minutes)
{
int mins;
mins = hrs*60 + minutes;
return mins;
```

}

OUTPUT



Expt 7: Write a program to calculate P(n/r).

AIM

Write a program to calculate P(n/r).

SOURCE CODE

```
//    Program name :          perm.c
//    Author   :              Anantha Krishnan R J
//    Date written :          5/10/2021
//    Date complied :         5/10/2021

#include  <stdio.h>
#include <conio.h>
main()
{
int n, r;
float result;

printf("\n Enter the value of n: ");
scanf("%d", &n);
printf("\n Enter the value of r: ");
scanf("%d", &r);
result =Fact(n)/Fact(r);
printf("\n P(n/r): P(%d)/(%d) = %f", n, r, result);
getch();
return 0;
}
int Fact(int num)
{
int f=1, i;
for(i=num;i>=1;i--)
f = f*i;
return f;
}
```

OUTPUT

```
Enter the value of n: 5

Enter the value of r: 2

P(n/r): P(5)/(2) = 60.000000
```

Expt 8: Write a program to calculate C(n/r).

AIM

Write a program to calculate C(n/r).

SOURCE CODE

```
//  Program name :          comb.c
//  Author  :               Anantha Krishnan R J
//  Date written :          5/10/2021
//  Date complied :         5/10/2021
```

```
#include  <stdio.h>
#include <conio.h>
main()
{
int n, r;
float result;

printf("\n Enter the value of n: ");
scanf("%d", &n);
printf("\n Enter the value of r: ");
scanf("%d", &r);
result = (float)Fact(n)/(Fact(r)*Fact(n-r));
printf("\n C(n/r) : C(%d/%d) = %.2f", n, r, result);
getch();
return 0;
}
int Fact(int num)
{
int f=1, i;
for(i=num;i>=1;i--)
f = f*i;
return f;
}
```

OUTPUT

```
Enter the value of n: 5

Enter the value of r: 2

C(n/r) : C(5/2) = 10.00
```

Expt 9: Write a program to sum the series—1/1! + 1/2! + 1/3! + ….. + 1/n!

AIM

Write a program to sum the series—1/1! + 1/2! + 1/3! + ….. + 1/n!

SOURCE CODE

```
//    Program name :          sum_series.c
//    Author   :              Anantha Krishnan R J
//    Date written :          6/10/2021
//    Date complied :         6/10/2021
```

```
#include  <stdio.h>
#include <conio.h>
main()
{
int n, f, i;
float result=0.0;
printf("\n Enter the value of n: ");
scanf("%d", &n);
for(i=1;i<=n;i++)
{

f=Fact(i);
result += 1/(float)f;

}
printf("\n The sum of the series 1/1! + 1/2! + 1/3!... = %f", result);
getch();
return 0;
}
int Fact(int num)
{

int f=1, i;
for(i=num;i>=1;i--)
f = f*i;
return f;

}
```

OUTPUT

```
Enter the value of n: 5

The sum of the series 1/1! + 1/2! + 1/3!... = 1.716667
```

Expt 10: Write a program to sum the series—1/1! + 4/2! + 27/3! + ...

AIM

Write a program to sum the series—1/1! + 4/2! + 27/3! + ...

SOURCE CODE

```
//      Program name :          sum_series.c
//      Author   :              Anantha Krishnan R J
//      Date written :          6/10/2021
//      Date complied :         6/10/2021
#include  <stdio.h>
#include <conio.h>
#include <math.h>
main()
{
int n, i, NUM, DENO;
float sum=0.0;
printf(" Enter the value of n \n ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
NUM = pow(i,i);
DENO = Fact(i);
sum += (float)NUM/DENO;
}
printf("\n 1/1! + 4/2! + 27/3! +.....+ %d/%d= %f",NUM,DENO ,sum);
getch();
return 0;
}
```

```
int Fact(int n)
{
int f=1, i;
for(i=n;i>=1;i--)
f=f*i;
return f;
}
```

OUTPUT

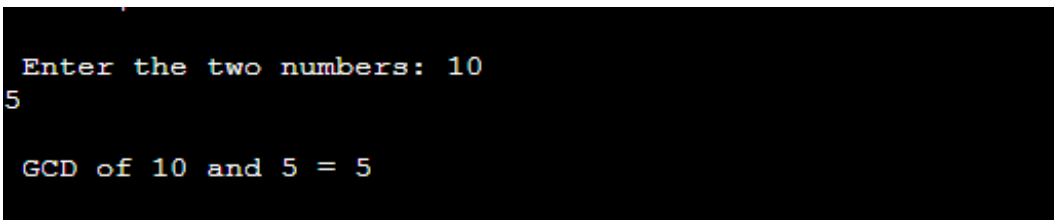
```
Enter the value of n
3

1/1! + 4/2! + 27/3! + .... + 27/6= 7.500000
```

Expt 11. Write a program to calculate GCD using recursive functions

PROGRAM:

```
#include <stdio.h>

int GCD(int, int);

main()

{

int num1, num2, res;

printf("\n Enter the two numbers: ");

scanf("%d %d", &num1, &num2);

res = GCD(num1, num2);

printf("\n GCD of %d and %d = %d", num1, num2, res);

return 0;

}

int GCD(int x, int y)

{

int rem;

rem = x%y;

if(rem==0)

return y;

else

return (GCD(y, rem));

}
```

OUTPUT:



12. Write a program to calculate exp(x,y) using recursive functions.

PROGRAM:

```
#include<stdio.h>
#include<math.h>
int exp(int n1,int n2);
int main()
{
int base, a , result;
printf("Enter base number:");
scanf("%d",&base);
printf("Enter power number:");
scanf("%d",&a);
result=exp(base,a);
printf("%d^%d=%d", base,a,result);
return 0;
}
int exp(int base, int a)
{
if (a!=0)
return(base*exp(base,a-1));
else
return 1;
}
```

OUTPUT:

```
Enter base number:10
Enter power number:3
10^3=1000
```

Expt 13. Write a program to print the Fibonacci series using recursion.

PROGRAM

```
#include <stdio.h>

#include<math.h>

int  Fibonacci(int);

main()

{

int n;

printf("\n Enter the number of terms in the series: ");

scanf("%d", &n);

for(int i=0;i<n;i++)

printf("\n Fibonacci (%d) = %d", i, Fibonacci(i));

return 0;

}

int Fibonacci(int num)

{

if(num==0)

return 0;

else if(num==1)

return 1;

else

return (Fibonacci (num - 1) + Fibonacci(num - 2));

}
```

OUTPUT:

```
Enter the number of terms in the series: 5

Fibonacci (0) = 0
Fibonacci (1) = 1
Fibonacci (2) = 1
Fibonacci (3) = 2
Fibonacci (4) = 3
```

Expt 14. Add two matrices using function

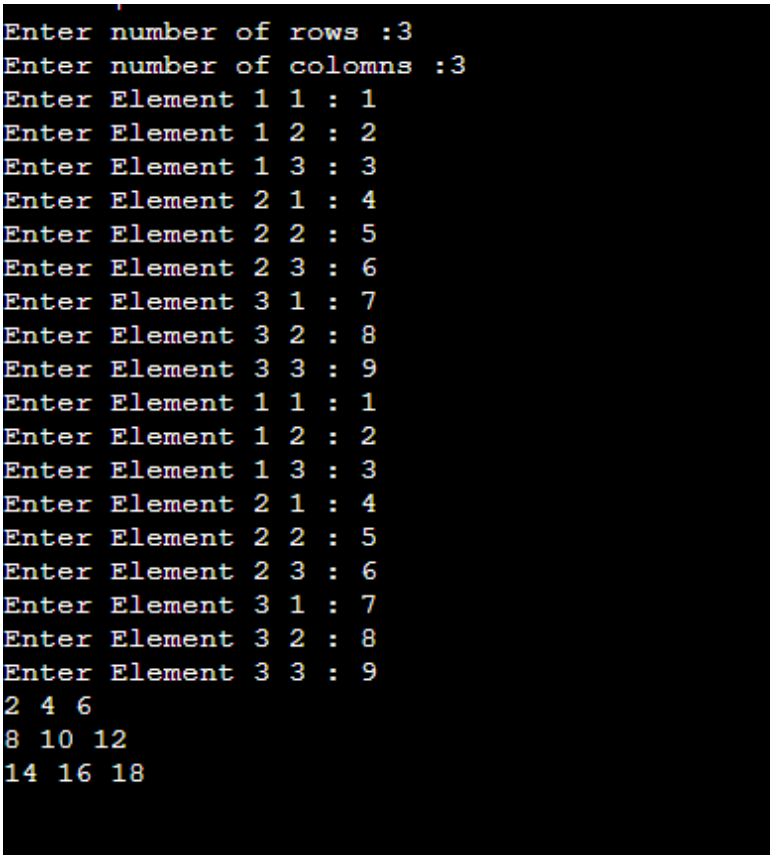
PROGRAM:

```
#include<stdio.h>

#include<conio.h>


void read_arr(int a[10][10],int row,int col)

{

   int i,j;

   for(i=1;i<=row;i++)

   {

   for(j=1;j<=col;j++)

   {

      printf("Enter Element %d %d : ",i,j);

      scanf("%d",&a[i][j]);

         }

   }

}


void add_arr(int m1[10][10],int m2[10][10],int m3[10][10],int row,int col)

{

   int i,j;

   for(i=1;i<=row;i++)

   {

   for(j=1;j<=col;j++)

   {

   m3[i][j] = (m1[i][j] + m2[i][j]);

   }

   }
```

```
}

void print_arr(int m[10][10],int row,int col)
{
   int i,j;
   for(i=1;i<=row;i++)
      {
      for(j=1;j<=col;j++)
      {
         printf("%d ",m[i][j]);
       }
      printf("\n");
      }
}

main()
{
   int m1[10][10],m2[10][10],m3[10][10],row,col;

   printf("Enter number of rows :");
   scanf("%d",&row);
   printf("Enter number of colomns :");
   scanf("%d",&col);
   read_arr(m1,row,col);
   read_arr(m2,row,col);
   add_arr(m1,m2,m3,row,col);
   print_arr(m3,row,col);
   getch();
```

}

OUTPUT


Enter number of rows :3
Enter number of colomns :3
Enter Element 1 1 : 1
Enter Element 1 2 : 2
Enter Element 1 3 : 3
Enter Element 2 1 : 4
Enter Element 2 2 : 5
Enter Element 2 3 : 6
Enter Element 3 1 : 7
Enter Element 3 2 : 8
Enter Element 3 3 : 9
Enter Element 1 1 : 1
Enter Element 1 2 : 2
Enter Element 1 3 : 3
Enter Element 2 1 : 4
Enter Element 2 2 : 5
Enter Element 2 3 : 6
Enter Element 3 1 : 7
Enter Element 3 2 : 8
Enter Element 3 3 : 9
2 4 6
8 10 12
14 16 18

Expt 15. Copy two string using function

PROGRAM:

```
#include<stdio.h>
void mystrcpy(char str2[30], char str1[30]);
int main()
{
 char str1[30], str2[30];
 int i;
 printf("Enter string:\n");
 gets(str1);
 mystrcpy(str2, str1);
 printf("Copied string is: %s", str2);
 return 0;
}
void mystrcpy(char str2[30], char str1[30])
{
 int i;
 for(i=0;str1[i]!='\0';i++)
 {
  str2[i] = str1[i];
 }
 str2[i] = '\0';
}
```

OUTPUT

```
Enter string:
hellooo
Copied string is: hellooo
```

16. Find length of a string suing function

PROGRAM:

```
#include<stdio.h>

int FindLength(char str[]);

int main() {

  char str[100];

  int length;


  printf("\nEnter the String : ");

  gets(str);


  length = FindLength(str);


  printf("\nLength of the String is : %d", length);

  return(0);

}


int FindLength(char str[]) {

  int len = 0;

  while (str[len] != '\0')

    len++;

  return (len);

}
```

OUTPUT

```
Enter the String : hello world

Length of the String is : 11
```

Expt 17. Sort set of numbers using function

PROGRAM:

```
#include<stdio.h>
void asc_sort(int a[100], int n);
main()
{
 int a[100], i, n;

 printf("Enter n:\n");
 scanf("%d", &n);
 for(i=0;i< n;i++)
 {
  printf("a[%d]=",i);
  scanf("%d", &a[i]);
 }
 asc_sort(a,n);
 printf("Array in ascending order is:\n");
 for(i=0;i< n;i++)
 {
  printf("%d\t", a[i]);
 }
}
void asc_sort(int a[10], int n)
{
 int i, j, temp;
 for(i=0;i< n-1;i++)
 {
  for(j=i+1;j< n;j++)
```

```
 {
  if(a[i]>a[j])
  {
   temp = a[i];
   a[i] = a[j];
   a[j] = temp;
  }
 }
}
```

OUTPUT:

```
Enter n:
5
a[0]=1
a[1]=2
a[2]=3
a[3]=1
a[4]=4
Array in ascending order is:
1       1       2       3       4
```