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Assignment 3: Function In C

Q1. Write a C Program to find the Greatest Common Divisor using the functions.

Expected Output

1) Enter the numbers : 150,35

The Greatest Common Divisor of 150 and 35 is 5

2) Enter the numbers : 1026,405

The Greatest Common Divisor of 1026 and 405 is 27

3) Enter the numbers : 83,240

The Greatest Common Divisor of 83 and 240 is 1

Code:

```
#include<stdio.h>

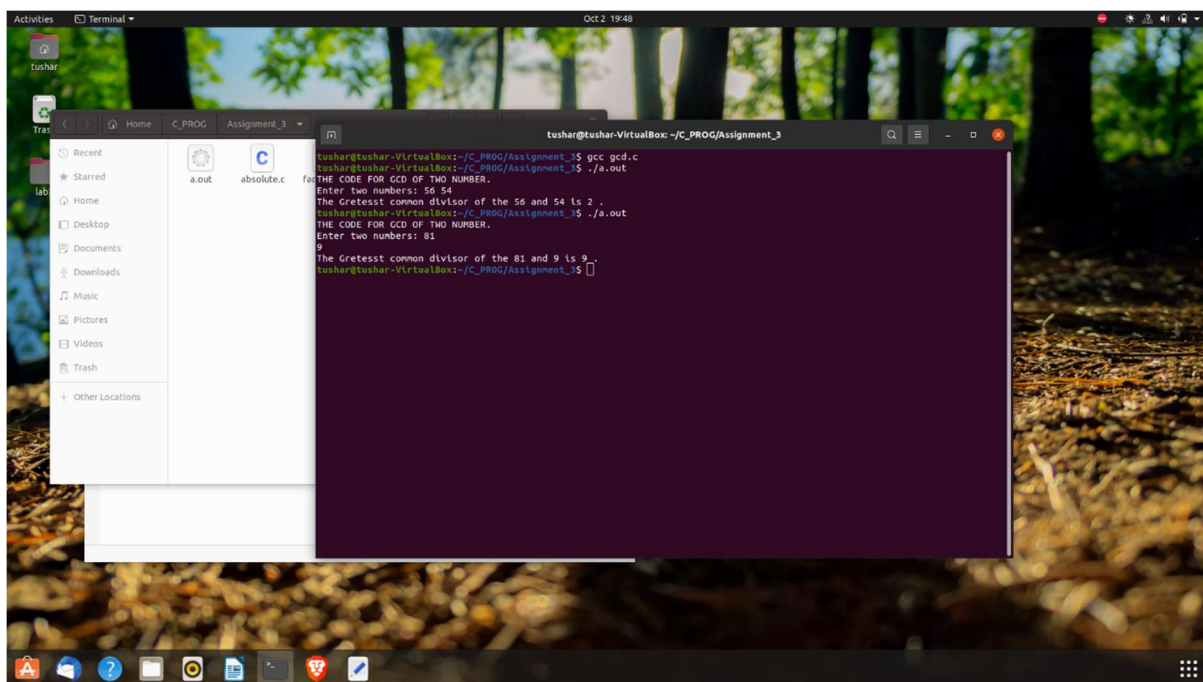
int gcd( int, int );

int main(){
    int x, y;
    printf("Enter two numbers: ");
    scanf("%d%d", &x, &y);
    int Greatest_Common_Divisor = gcd(x, y);
    printf("The Greatest common divisor of the %d and %d is %d \n", x, y, Greatest_Common_Divisor);
    return 0;
}

int gcd(int a, int b)
{
    int z;
    for (int i = 1; i < a && i < b; i++)
    {
        if (a%i==0 && b%i==0)
        {
```

```
        z = i;  
    }  
  
}  
  
return z;  
}
```

Output:



Q2. Write a C Program to find the Absolute Value using the functions.

Expected Output

1) Enter the number : 100

The Absolute Value of 100 is 100

2) Enter the number : -200

The Absolute Value of -200 is 200

Code:

```
#include<stdio.h>

int absolute(int);

int main(){

    printf("THE CODE FOR ABSOLUTE NUMBER.\n");

    int a;

    printf("enter the number :");

    scanf("%d",&a);

    int abs = absolute(a);

    printf("The Absolute of %d is %d.\n", a, abs);

    return 0;

}

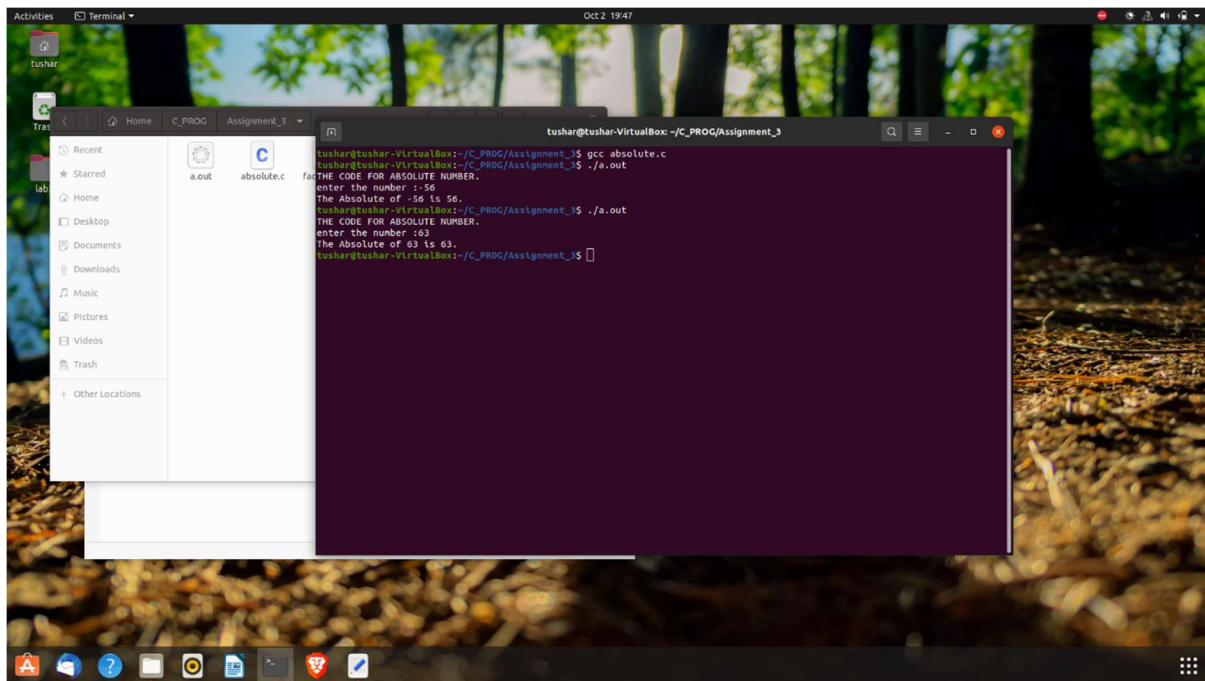
int absolute(int x){

    int y = x < 0 ? (-x) : x;

}
```

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Output:



The screenshot displays a Linux desktop environment. On the left, a file manager window is open, showing the 'Recent' tab with files 'a.out' and 'absolute.c'. The main window is a terminal titled 'tushar@tushar-VirtualBox: ~/C_PROG/Assignment_3'. The terminal shows the following commands and output:

```
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ gcc absolute.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
THE CODE FOR ABSOLUTE NUMBER.
enter the number : 56
The Absolute of -56 is 56.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
THE CODE FOR ABSOLUTE NUMBER.
enter the number : 63
The Absolute of 63 is 63.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$
```

Q3. Write a C program to check whether the given number is perfect number or not using functions

A number is called as a perfect number if the sum of the factors of that number is equal to the same number.

Expected Output

1) Enter the number : 6

The number entered is Perfect Number

2) Enter the number : 24

The number entered is not a Perfect Number

Code:

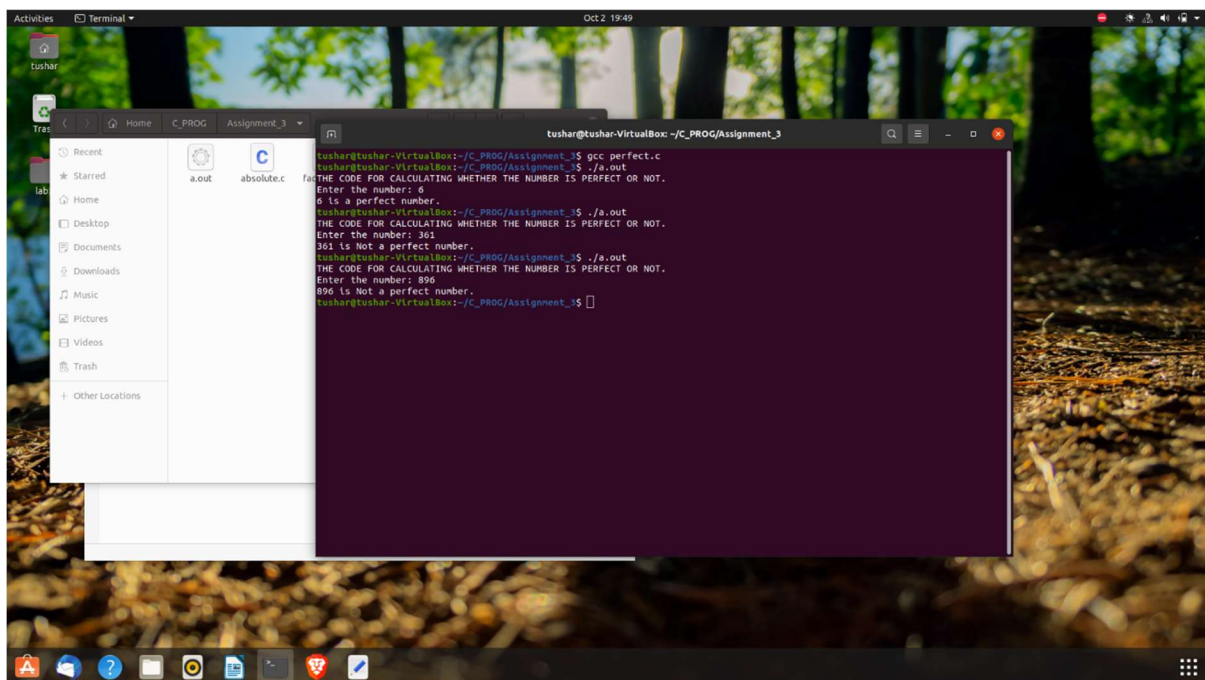
```
#include<stdio.h>

void perfect(int);

void perfect(int a)
{
    int b=0, x;
    for (int i = 1; i < a; i++)
    {
        if ( a % i == 0 )
        {
            b = b + i;
        }
    }
    if (a == b)
    {
        printf("%d is a perfect number.\n",a);
    }
    else
    {
        printf("%d is Not a perfect number.\n",a);
    }
}
```

```
}  
  
}  
  
int main()  
{  
    printf("THE CODE FOR CALCULATING WHETHER THE NUMBER IS PERFECT OR NOT.\n");  
  
    int c;  
  
    printf("Enter the number: ");  
  
    scanf("%d", &c);  
  
    perfect(c);  
  
    return 0;  
}
```

Output:



```
tushar@tushar-VirtualBox: ~/C_PROG/Assignment_3  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ gcc perfect.c  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out  
THE CODE FOR CALCULATING WHETHER THE NUMBER IS PERFECT OR NOT.  
Enter the number: 6  
6 is a perfect number.  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out  
THE CODE FOR CALCULATING WHETHER THE NUMBER IS PERFECT OR NOT.  
Enter the number: 361  
361 is Not a perfect number.  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out  
THE CODE FOR CALCULATING WHETHER THE NUMBER IS PERFECT OR NOT.  
Enter the number: 896  
896 is Not a perfect number.  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$
```

Q4. Write a C Program to find the factorial of a given number using functions.

Expected Output

1) Enter the number : 7

The Factorial of 7 is 5040

2) Enter the number : 0

The Factorial of 0 is 1

Code:

```
#include<stdio.h>

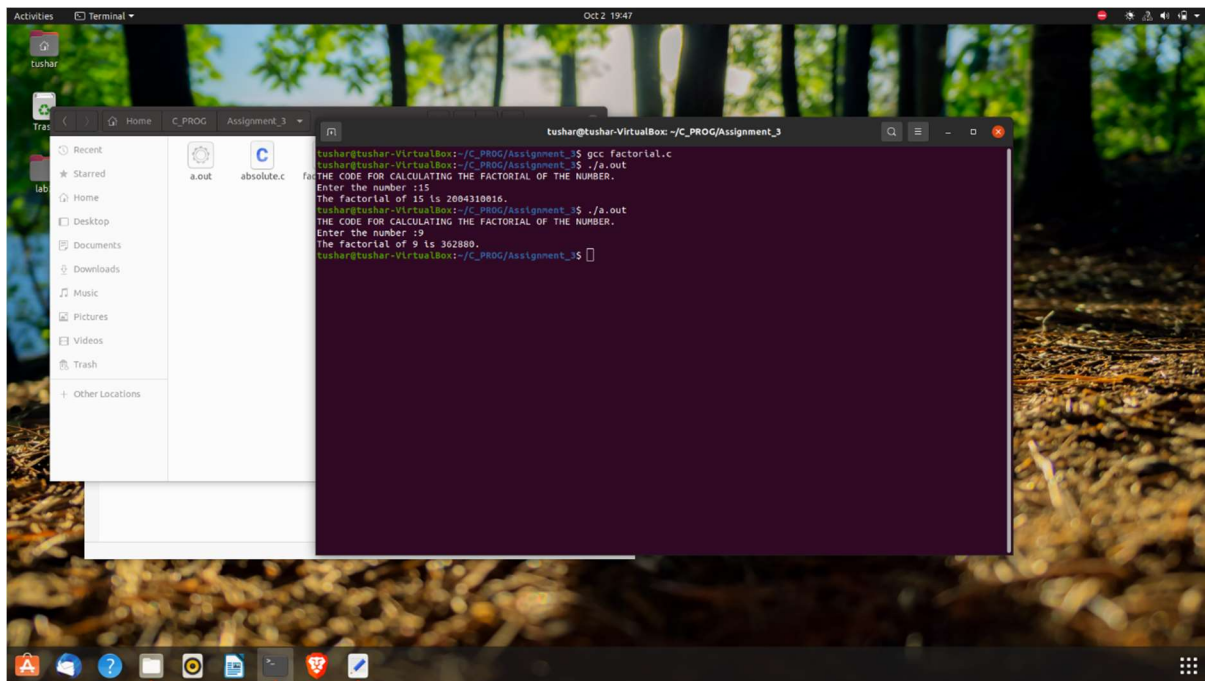
int fact(int);

int main()
{
    printf("THE CODE FOR CALCULATING THE FACTORIAL OF THE NUMBER.\n");
    int a;
    printf("Enter the number :");
    scanf("%d",&a);
    int factorial = fact(a);
    printf("The factorial of %d is %d. \n",a , factorial);
    return 0;
}

int fact(int x)
{
    int y = 1;
    for (int i = 1; i <= x; i++)
    {
        y = y * i;
    }
    return y;
}
```

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Output:



The screenshot displays a Linux desktop environment. On the left, a file manager window is open, showing the 'Recent' tab with files 'a.out' and 'absolute.c'. The main window is a terminal titled 'tushar@tushar-VirtualBox: ~/C_PROG/Assignment_3'. The terminal output shows the compilation and execution of a C program to calculate factorials. The program prompts the user to enter a number, and the output shows the factorial of 15 is 2004310016 and the factorial of 9 is 362880.

```
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ gcc factorial.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
Enter the number :15
The factorial of 15 is 2004310016.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
Enter the number :9
The factorial of 9 is 362880.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$
```


Q5. Write a C Program to find the power of a given number using functions.

Expected Output

1) Enter the base number : 2

Enter the power number : 3

2³ = 8

2) Enter the base number : 5

Enter the power number : 0

5⁰ = 1

Code:

```
#include<stdio.h>

float powe(float,float);

float powe(float x, float p){
    float power = 1.0;
    if(p<0)
    {
        p = (-1) * p;
        x = 1 / x;
    }
    for (int i = 0; i < p; i++)
    {
        power = power * x;
    }
    return power;
}

int main()
{
    printf("THE CODE FOR CALCULATING POWER OF NUMBER.\n");
    float a, b;
    printf("Enter the base number: ");
    scanf("%f",&a);
    printf("Enter the power number: ");
```

```
scanf("%f",&b);

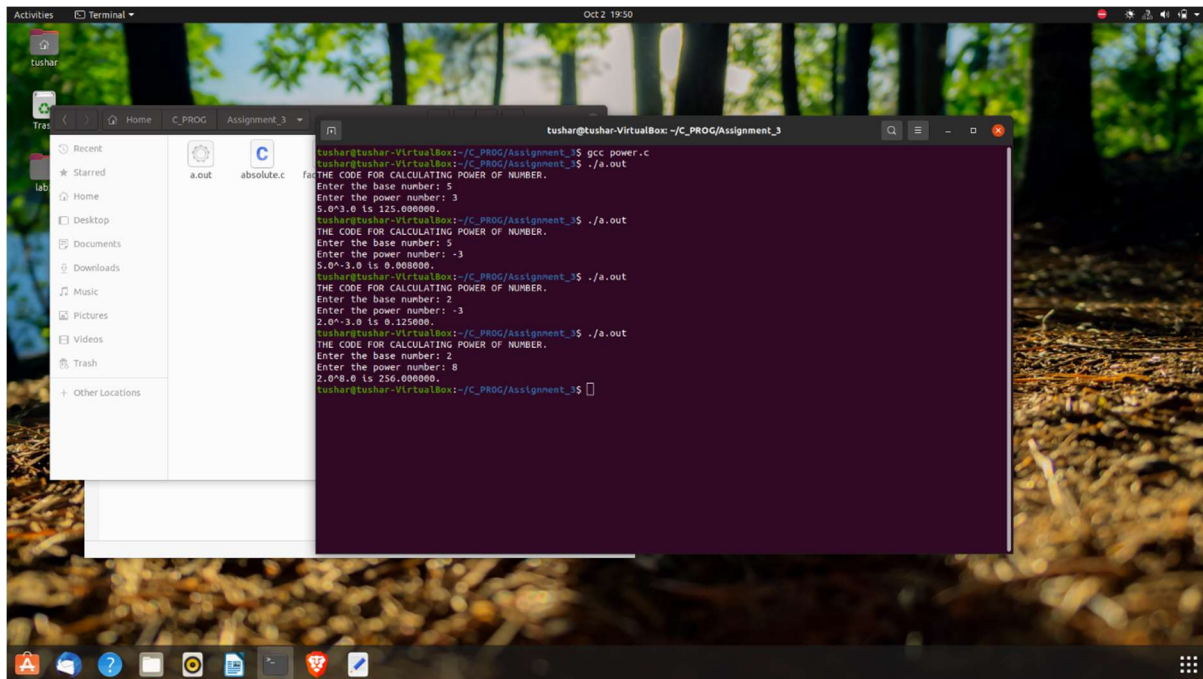
float p = powe(a, b);

printf("%.1f^%.1f is %f. \n", a, b, p);

return 0;

}
```

Output:



```
tushar@tushar-VirtualBox: ~/C_PROG/Assignment_3
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ gcc power.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
THE CODE FOR CALCULATING POWER OF NUMBER.
Enter the base number: 5
Enter the power number: 3
5.0^3.0 is 125.000000.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
THE CODE FOR CALCULATING POWER OF NUMBER.
Enter the base number: 5
Enter the power number: -3
5.0^-3.0 is 0.008000.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
THE CODE FOR CALCULATING POWER OF NUMBER.
Enter the base number: 2
Enter the power number: -3
2.0^-3.0 is 0.125000.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$ ./a.out
THE CODE FOR CALCULATING POWER OF NUMBER.
Enter the base number: 2
Enter the power number: 8
2.0^8.0 is 256.000000.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_3$
```