Week 3: Programs on User Defined Functions

2021

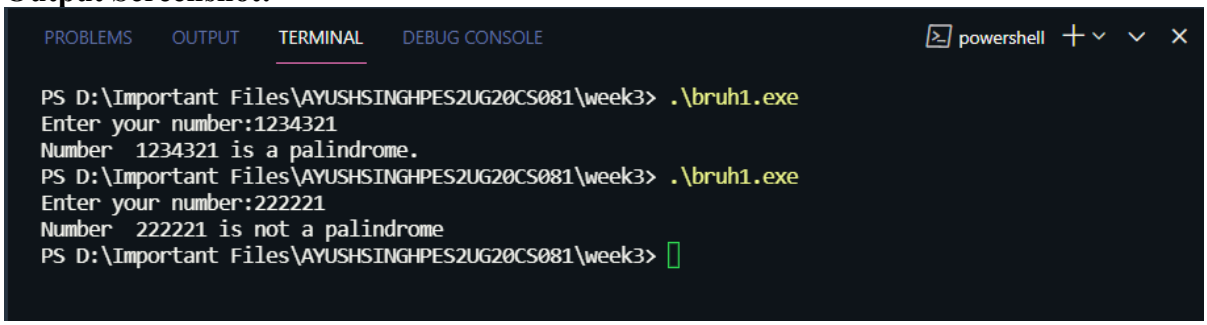
Name:	SRN:	Section:
	Date:	Week Number:

1	**Write a function to reverse a given number and check whether a given number is palindrome or not.** **Input:** Enter the number 121 **Output:** The Number 121 is Palindrome **Input:** Enter the number **Output:** 123 Number 123 is Not Palindrome
	Program: **#include<stdio.h>** **//prototype** **int reverse(int a);** **int main(){** **int a;** **printf("Enter your number:");** **scanf("%d",&a);** **printf("Number %d ",a);** **if (a==reverse(a))** **{** **printf("is a palindrome.");** **}else printf("is not a palindrome");** **return 0;** **}** **int reverse(int c){** **int b;** **b=0;**

```
    while(c){
        b=(b*10)+(c%10);
        c=(c-(c%10))/10;
    }

    return b;
}
```

Output Screenshot:



2 **Write a C program to compute GCD of three numbers using functions.**

Input:

Enter the values of a,b and c

10 4 16

Output:

GCD(10,4,16)=2

Program:

```
#include <stdio.h>

//prototype
int highest(int arr[]);
int gcd(int arr[],int high);


int main(){

    int arr[3];
    printf("Enter 3 numbers:");
    scanf("%d %d %d",&arr[0],&arr[1],&arr[2]);
```

```
    printf("GCD(%d,%d,%d)= %d",arr[0],arr[1],arr[2],gcd(arr,highest(arr)));

    highest(arr);

}
int highest(int arr[]){

    int ans=arr[0];
    for ( int i = 0; i < 3; i++)
    {
        if(arr[i]>ans){
            ans=arr[i];
        }
    }

    return ans;
}
int gcd(int arr[],int high){
    int result;

    for (result = high; result >=1; result--)
    {
        if(arr[0]%result==0 && arr[1]%result==0 && arr[2]%result==0){
            break;
        }
    }

    return result;
}
```

Output Screenshot:

3 Write a program in C to check Armstrong and perfect numbers using functions.

Input:

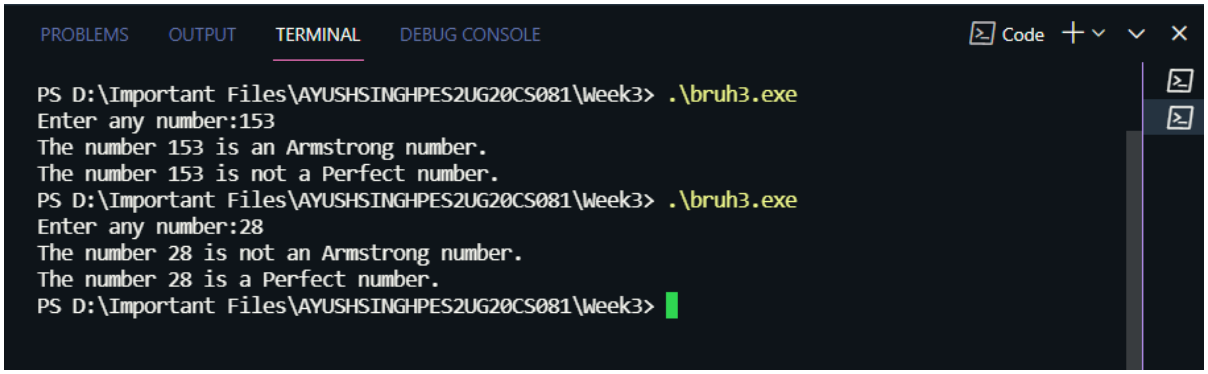
	Input any number: 153 **Output:** The 153 is an Armstrong number. The 153 is not a Perfect number. **Input:** Input any number: 28 **Output:** The 28 is not an Armstrong number. The 28 is a Perfect number.
	Program: **#include <stdio.h>** **#include<math.h>** **//prototype** **int arm(int num);** **int perfectnum(int num);** **int main(){** **int a;** **printf("Enter any number:");** **scanf("%d",&a);** **arm(a);** **perfectnum(a);** **}** **int arm(int num){** **int b=num;** **int sum=0;** **int c;** **while(b){** **sum=sum+pow((b%10),3);** **b=(b-b%10)/10;** **}** **if(num==sum){** **printf("The number %d is an Armstrong number.\n",sum);** **}** **else printf("The number %d is not an Armstrong number.\n",num);** **return 0;** **}** **int perfectnum(int num){** **int sum=0;** **int i;**

```
    for ( i = 1; i < num; i++)
    {

        if(num%i==0){
            sum+=i;
        }
    }
    if (sum==num){
        printf("The number %d is a Perfect number.\n",sum);
    }else printf("The number %d is not a Perfect number.\n",sum);


}
```

Output Screenshot:



4

Write a program in C to check whether a number is a prime number or not using function

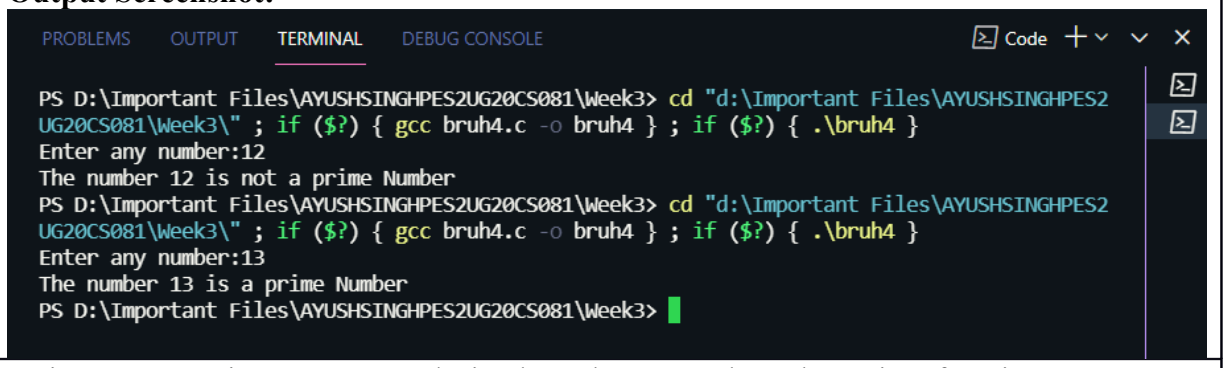
Input:

Input a positive number : 12

Output:

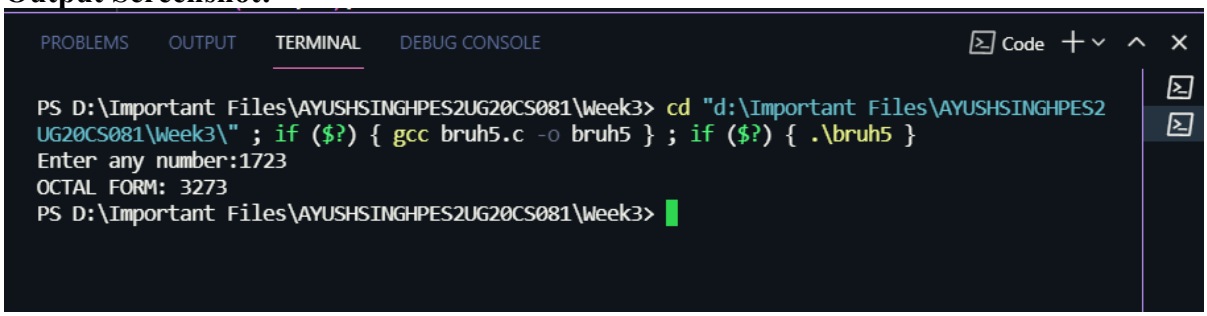
The number 12 is not a prime number

	Input: Input a positive number : 13 **Output:** The number 13 is a prime number
	Program: **#include<stdio.h>** **//prototype** **int primenum(int a);** **int main(){** **int a;** **printf("Enter any number:");** **scanf("%d",&a);** **primenum(a);** **return 0;** **}** **int primenum(int a){** **int ans=0;** **if (a>1){** **for (int i = 2; i <= a/2; i++)** **{** **if (a%i==0)** **{** **ans=1;** **break;** **}** **}** **}else{** **printf("1 is not prime:");** **}** **if(ans){** **printf("The number %d is not a prime Number",a);** **}else printf("The number %d is a prime Number",a);** **}**

	Output Screenshot: 
5	Write a program in C to convert decimal number to octal number using function **Input:** Input any decimal number : 25 **Output:** Equivalent Octal Number: 17 **Input:** Input any decimal number : 15 **Output:** Equivalent Octal Number: 31
	Program: **#include<stdio.h>** **int octal(int a);** **int main(){** **int a;** **printf("Enter any number:");** **scanf("%d",&a);** **printf("OCTAL FORM: %d",octal(a));** **}** **int octal(int a){** **int quo,rem;** **quo=(a-a%8)/8;**

```
    rem=a%8;
    if (quo==0){
        return rem;
    }
    else{
        return octal(quo)*10+rem;
    }
}
```

Output Screenshot:



6 Write a program in C to find the sum of the series 1!/1+2!/2+3!/3+4!/4+5!/5 using function.

Output:

The sum of the series is : 34

Program:

```
#include<stdio.h>


int series(int num);
int fact(int num);

int main(){
    int a;
    printf("Enter any number:");
    scanf("%d",&a);
    printf("The sum of series is: %d",series(a));
    return 0;

}
int fact(int num){
    int i,ans=1;
    for ( i = 1; i <= num; i++)
    {
        ans*=i;
    }
```

```
    return ans;

}
int series(int num){
    if(num==1){
        return 1;
    }
    else{
        return (fact(num)/num)+series(num-1);
    }
};
```

Output Screenshot: