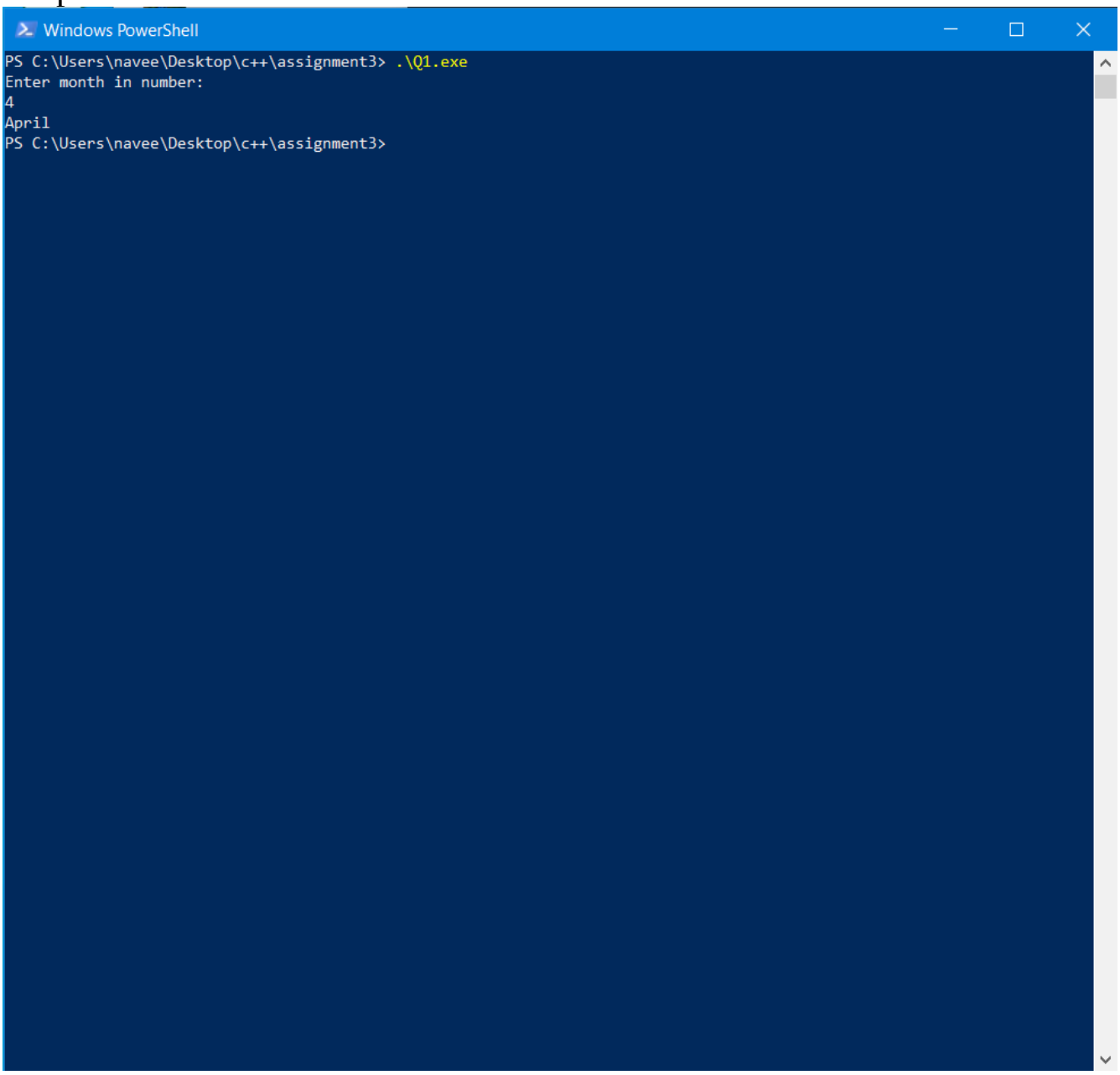
NAME: Naveen Kumar Tyagi
Roll No: 862041 Section: F

Q1. Write a C++ program to take the month in number and print the name of the month.

Code:

```
//862041_Naveen Kumar Tyagi
#include<iostream>
using namespace std;
int main(){
   int num;  //declaration of variable that will be used to store month number

   cout<<"Enter month in number: "<<endl;
   cin>>num;  // store entered number in num

   //switch statement to print month name corresponding to number
   switch(num){
      case 1:cout<<"January";
      break;
      case 2:cout<<"February";
      break;
      case 3:cout<<"March";
      break;
      case 4:cout<<"April";
      break;
      case 5:cout<<"May";
      break;
      case 6:cout<<"June";
      break;
      case 7:cout<<"July";
      break;
      case 8:cout<<"August";
      break;
      case 9:cout<<"September";
      break;
      case 10:cout<<"October";
      break;
      case 11:cout<<"November";
      break;
      case 12:cout<<"December";
      break;
   }
   return 0;

}
```

Output:


Windows PowerShell
PS C:\Users\navee\Desktop\c++\assignment3> .\Q1.exe
Enter month in number:
4
April
PS C:\Users\navee\Desktop\c++\assignment3>

Q2. Any character is entered through the keyboard, write a program to determine whether the character entered is a capital letter, a small case letter, a digit or a special symbol.

The following table shows the range of ASCII values for various characters.

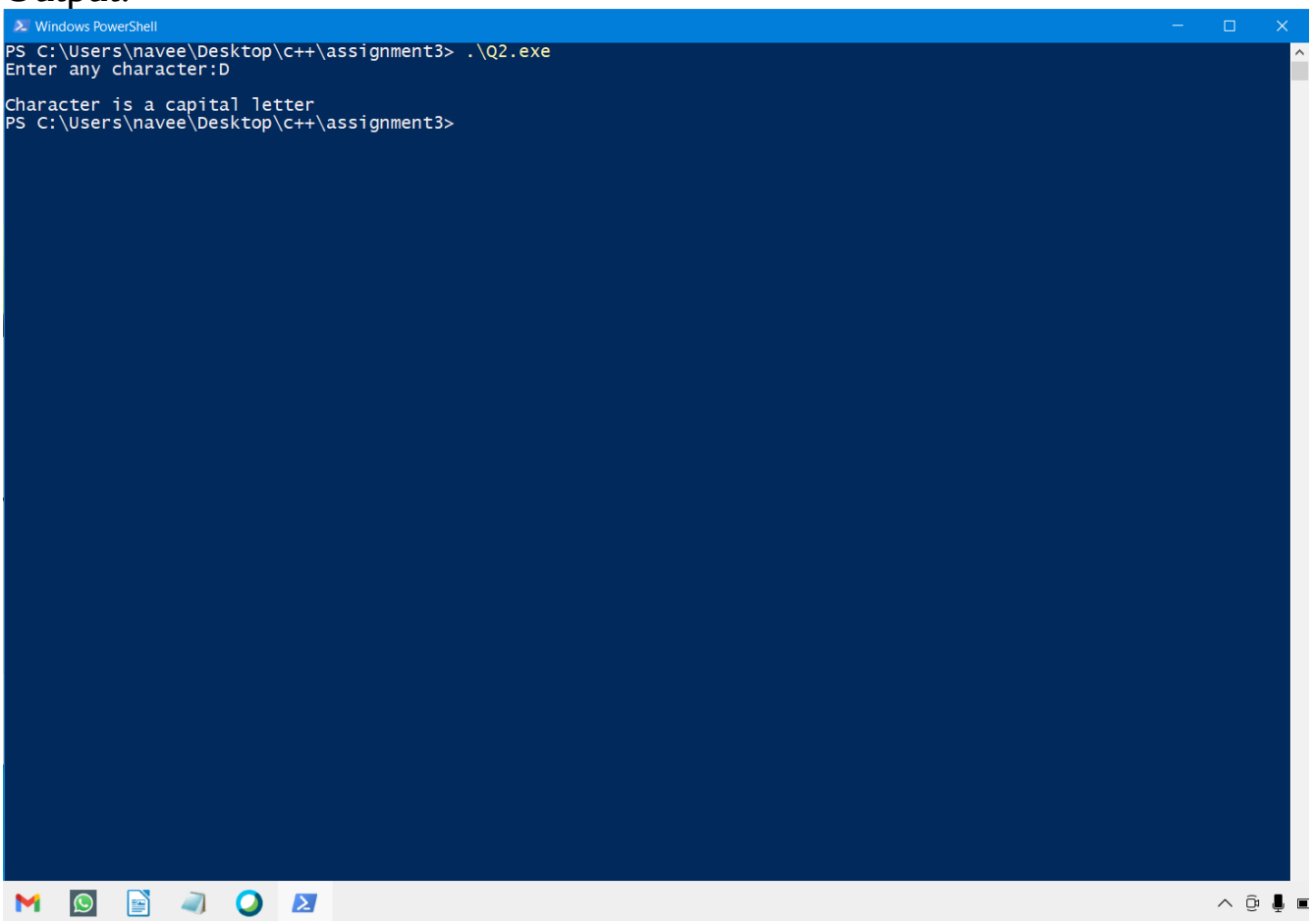
A - Z = 65 -90
a - z = 97 - 122
0 - 9 = 48 - 57
special symbols = 0 - 47, 58 - 64, 91 - 96, 123 - 127

Code:

```
//862041_Naveen Kumar Tyagi

#include<iostream>
using namespace std;

int main (){
        char ch;   //declaration of variable ch with datatype character
        cout<<"Enter any character:";
        cin>>ch; //store entered value in ch

    //if statement to tell entered character is a special symbol
   if ((ch>0 && ch<=47)||(ch>=58 && ch<=64)||(ch>=91 && ch<=96)||(ch>=123 && ch<=127)){
                cout<<"\nCharacter is a special symbol";
                }

   // else if statement to tell entered Character is a digit
   else if (ch>=48 && ch<=57){
                cout<<"\nCharacter is a digit";
   }

   // else if statement to tell entered Character is a capital letter
        else if (ch>=65 && ch<=90){
                cout<<"\nCharacter is a capital letter";
        }

   // else if statement to tell entered Character is a small letter
        else if (ch>=97 && ch<=122){
                cout<<"\nCharacter is a small letter";
        }
```

```
    return 0;
}
```

Output:



Q3. A certain grade of steel is graded according to the following conditions:

(i) Hardness must be greater than 50
(ii) Carbon content must be less than 0.7
(iii) Tensile strength must be greater than 5600

The grades are as follows:
Grade is 10 if all three conditions are met
Grade is 9 if conditions (i) and (ii) are met
Grade is 8 if conditions (ii) and (iii) are met
Grade is 7 if conditions (i) and (iii) are met
Grade is 6 if only one condition is met
Grade is 5 if none of the conditions are met

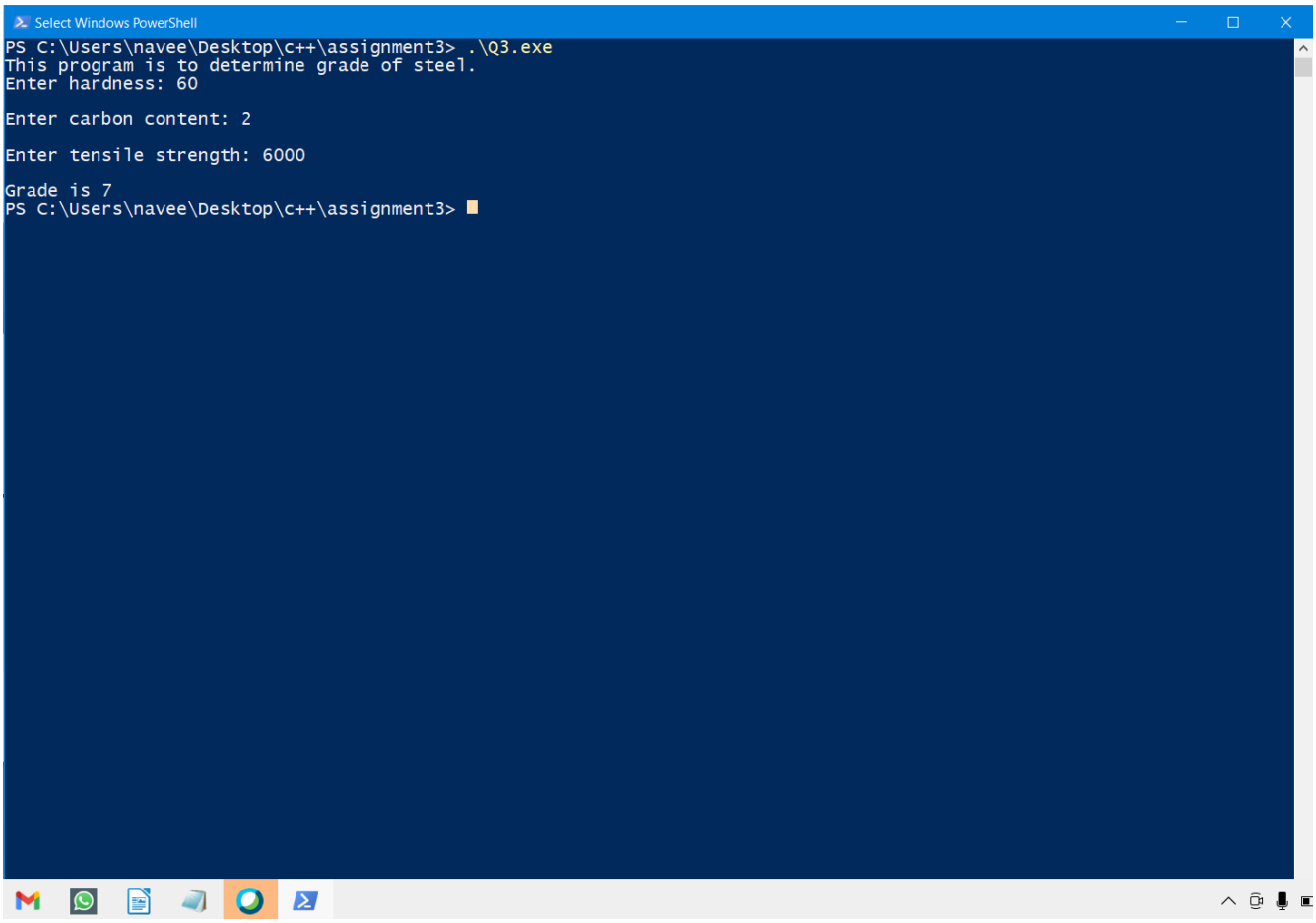
Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel

Code:

```
//862041_Naveen Kumar Tyagi
#include<iostream>
using namespace std;
int main(){
   float hardness,c_content,ten_str; //declaration of required variables in this context
   cout<<"This program is to determine grade of steel.";
   cout<<"\nEnter hardness: ";
   cin>>hardness;                //store steel hardness in var. hardness

   cout<<"\nEnter carbon content: ";
   cin>>c_content;               //store steel carbon content in var. c_content
```

```
    cout<<"\nEnter tensile strength: ";
    cin>>ten_str;                  //store steel tensile strength in var. ten_str



    // if statements to print grade of steel corresponds to conditions satisfied


    if((hardness>50)&&(c_content<0.7)&&(ten_str>5600)){
        cout<<"\nGrade is "<<10;
    }
    else if((hardness>50)&&(c_content<0.7)){
        cout<<"\nGrade is "<<9;
    }
    else if((c_content<0.7)&&(ten_str>5600)){
        cout<<"\nGrade is "<<8;
    }
    else if((hardness>50)&&ten_str>5600){
        cout<<"\nGrade is "<<7;
    }
    else if((hardness>50)||(c_content<0.7)||(ten_str>5600)){
        cout<<"\nGrade is "<<6;
    }
    else{
        cout<<"\nGrade is "<<5;
        }

    return 0;
}
```

Output:


Select Windows PowerShell
PS C:\Users\navee\Desktop\c++\assignment3> .\Q3.exe
This program is to determine grade of steel.
Enter hardness: 60
Enter carbon content: 2
Enter tensile strength: 6000
Grade is 7
PS C:\Users\navee\Desktop\c++\assignment3>

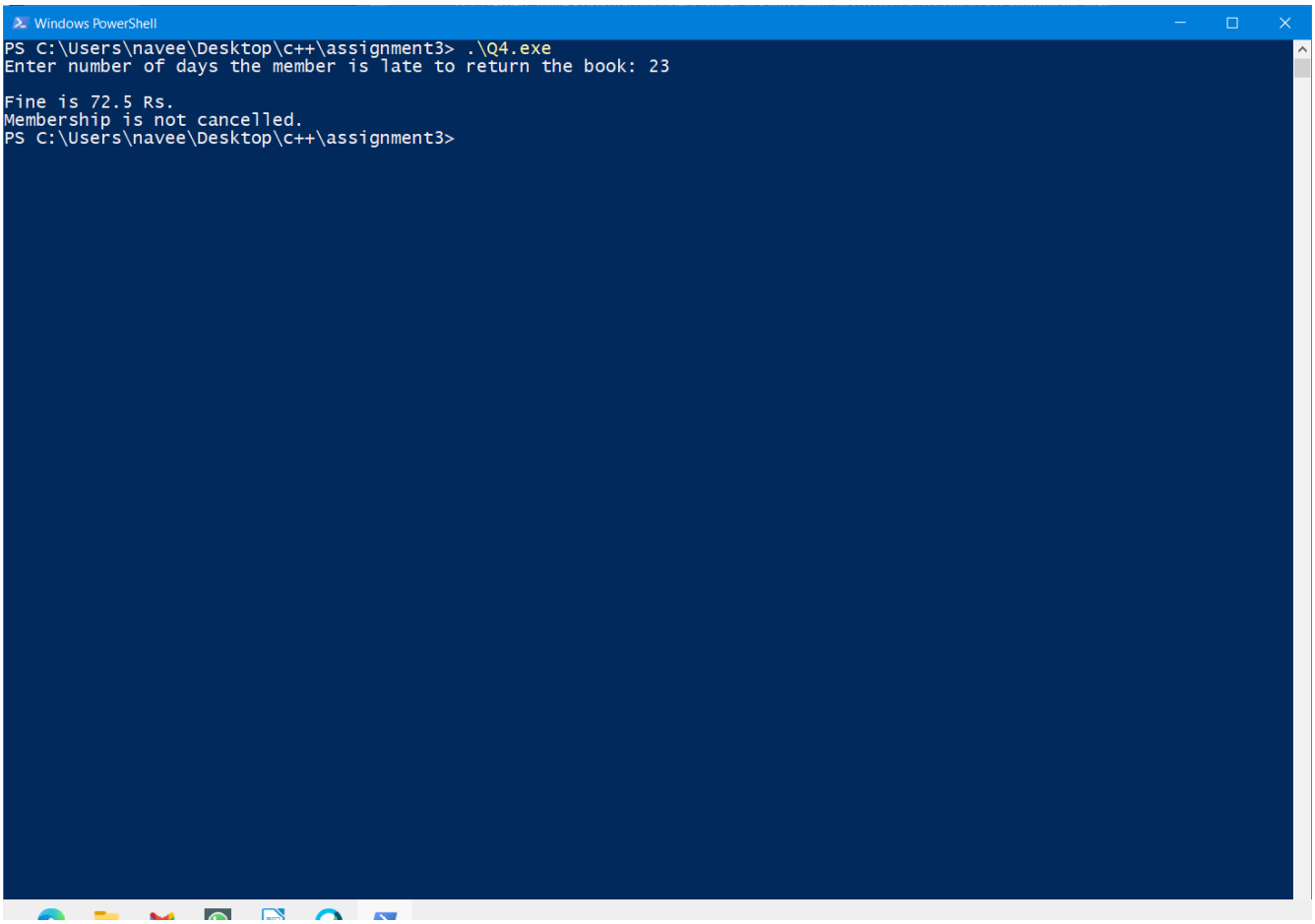
Q4. A library charges a fine for every book returned late. For the first 5 days the fine is 50 paise per day, for 6-10 days the fine is one rupee per day and above 10 days the fine is 5 rupees per day. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or the appropriate message.

Code:

```
//862041_Naveen Kumar Tyagi
#include<iostream>
using namespace std;
int main(){
   int days; //variable declaration
   float fine;//variable declaration

   cout<<"Enter number of days the member is late to return the book: ";
   cin>>days; //store entered in number in days

   //if statement to print fine and info about membership if if days<5
   if(days<=5){
      fine=0.5*days;
      cout<<"\nFine is "<<fine<<" Rs.";
      cout<<"\nMembership is not cancelled.";
   }
   //else if statement to print fine and info about membership if if 5<days<10
   else if((days>=6)&&(days<=10)){
      fine=0.5*5 +1*(days-5);
      cout<<"\nFine is "<<fine<<" Rs.";
       cout<<"\nMembership is not cancelled.";
   }
```

```
    //else if statement to print fine and info about membership if if 10<days<30
    else if((days>=10)&&(days<=30)){
        fine=0.5*5 +1*5 + 5*(days-10);
        cout<<"\nFine is "<<fine<<" Rs.";
         cout<<"\nMembership is not cancelled.";
    }
    //else statement to print fine and info about membership if if days>30
    else{
        fine=0.5*5 +1*5 + 5*(days-10);
        cout<<"\nFine is "<<fine<<" Rs.";
        cout<<"\nMembership is cancelled.";
    }
    return 0;
}
```

Output:


Windows PowerShell
PS C:\Users\navee\Desktop\c++\assignment3> .\Q4.exe
Enter number of days the member is late to return the book: 23
Fine is 72.5 Rs.
Membership is not cancelled.
PS C:\Users\navee\Desktop\c++\assignment3>

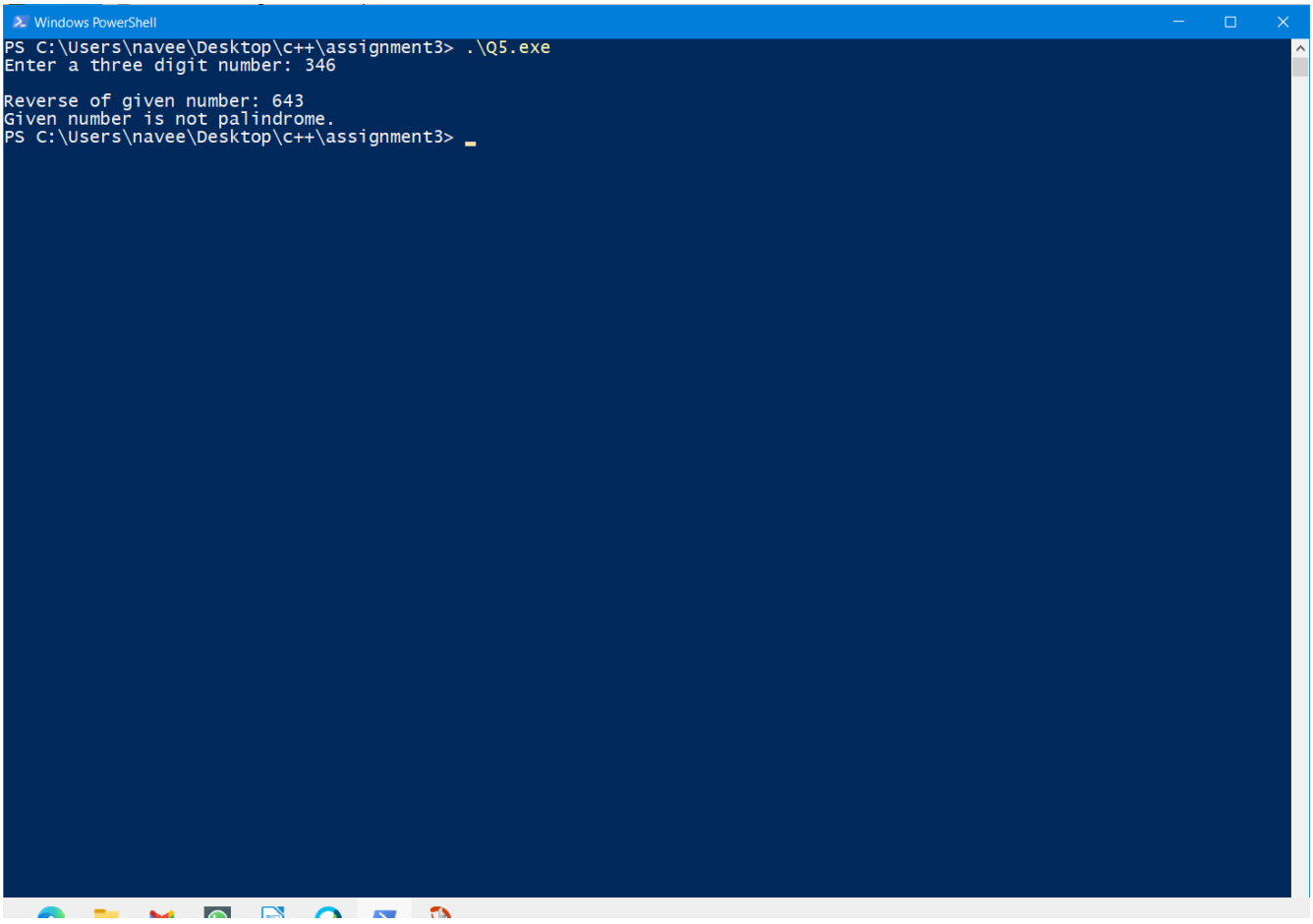
Q5. If a three digit number is input through the keyboard, write a C++ program to reverse the number. Find if the given number is a palindrome or not.

Code:

```
//862041_Naveen Kumar Tyagi
#include<iostream>
using namespace std;
int main(){
   int num,d1,d2,d3,rev_num;   //declaration of variables
   cout<<"Enter a three digit number: ";
   cin>>num;     //store entered number in num

   d1=num/100;   //store first digit in d1
   d2=(num/10)%10;// store second digit in d2
   d3=num%10;    //store third digit in d3

   rev_num=d3*100+d2*10+d1;        //store Reverse of given number in rev_num
   cout<<"\nReverse of given number: "<<rev_num;



   //if else statements to print whether the given number is palindrome or not
   if(num==rev_num){
      cout<<"\nGiven number is palindrome.";
   }
   else{
      cout<<"\nGiven number is not palindrome.";
   }
return 0;
```

}

Output:

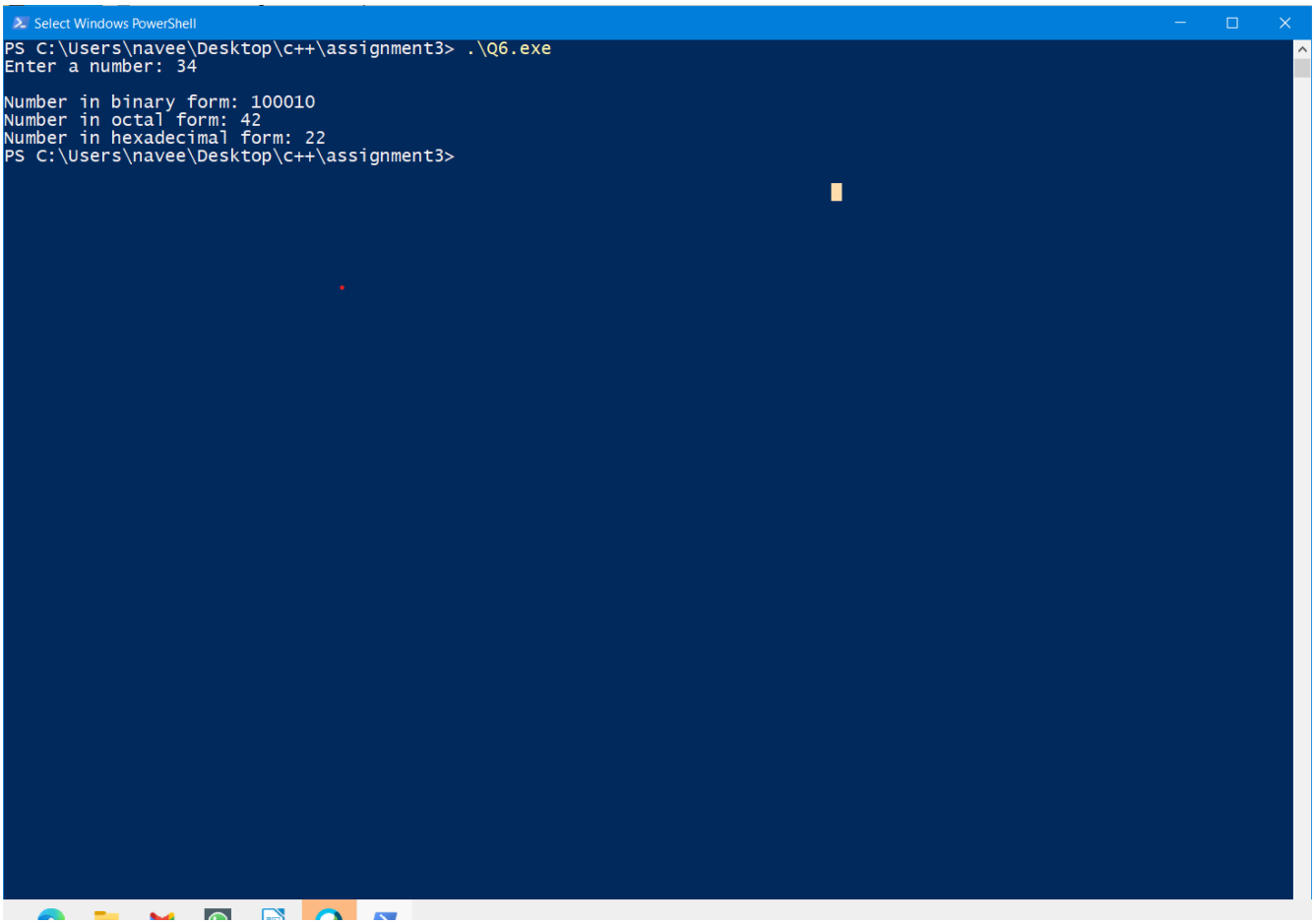

Windows PowerShell
PS C:\Users\navee\Desktop\c++\assignment3> .\Q5.exe
Enter a three digit number: 346
Reverse of given number: 643
Given number is not palindrome.
PS C:\Users\navee\Desktop\c++\assignment3>

Q6. Write a program that reads an integer -n (decimal number system) and convert this decimal number to Binary, Octal, and Hexadecimal form.

Code:

```
//862041_Naveen Kumar Tyagi
#include<iostream>
using namespace std;
int main(){
   int num,bin[100],i,num_bin;//declaration of variables,here bin[100] will store array of values
   cout<<"Enter a number: ";
   cin>>num;                //store entered number in num
   num_bin=num;             // store num in num_bin so that num_bin can be used to get binary form without affecting num value

   for(i=0;num_bin>0;i++){   //for loop to convert dec number in binary form
      bin[i]=num_bin%2;     //remainder will store in array
      num_bin=num_bin/2;
   }

   cout<<"\nNumber in binary form: ";
   for(i=i-1;i>=0;i--){      // for loop to print binary form of given number
   cout<<bin[i];
   }

   cout<<"\nNumber in octal form: "<<std::oct<<num;          //print given number in octal form
   cout<<"\nNumber in hexadecimal form: "<<std::hex<<num;    // print given number in hexadecimal form
   return 0;
}
```

Output:


Select Windows PowerShell
PS C:\Users\navee\Desktop\c++\assignment3> .\Q6.exe
Enter a number: 34
Number in binary form: 100010
Number in octal form: 42
Number in hexadecimal form: 22
PS C:\Users\navee\Desktop\c++\assignment3>