Software Construction and Development

Homework # 01

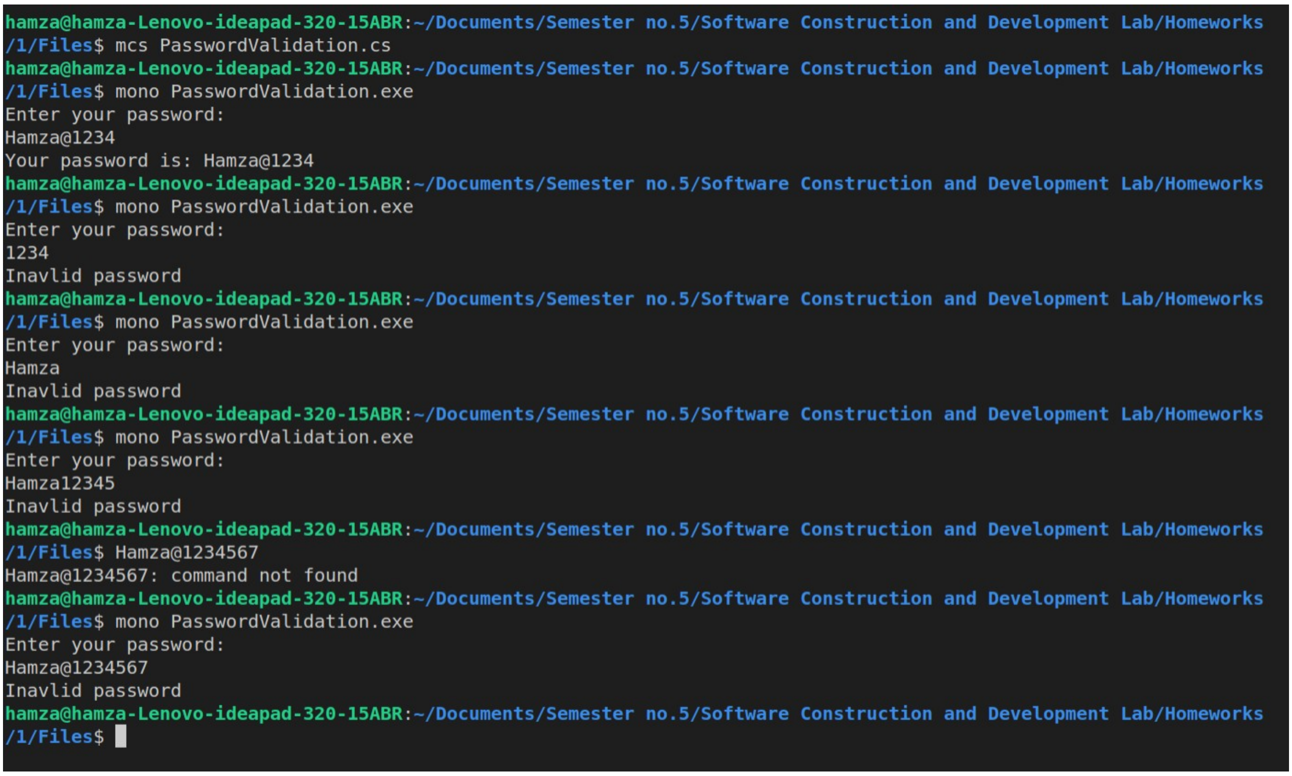
Task 01:

A) Password Validation:

Code:

```
         using System;
class Test{
   static void Main(){

      Console.WriteLine("Enter your password:");
      string pass = Console.ReadLine();
      if (pass.Length > 5 && pass.Length < 11 ){

         // Checking for digit
         int tmp = 0;   // for calculating digits
         foreach(char c in pass){
            if (c >= '0' && c <= '9'){
               tmp++;
               break;
            }
         }
         // Checking uppercase
         foreach(char c in pass){
            if (c >= 'A' && c <= 'Z'){
               tmp++;
               break;
            }
         }
         // Checking special characters
         char[] special = {'@', '#', '$', '%', '^', '&', '+', '='}; // or
whatever
         if (pass.IndexOfAny(special) == -1){
            // Do nothing
         } else{
            tmp++;
         }
         if(tmp == 3){
            Console.WriteLine("Your password is: " + pass);
         } else {
         Console.WriteLine("Inavlid password");
         }


      } else {
         Console.WriteLine("Inavlid password");
      }


   }
}
```

Output:



```
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mcs PasswordValidation.cs
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PasswordValidation.exe
Enter your password:
Hamza@1234
Your password is: Hamza@1234
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PasswordValidation.exe
Enter your password:
1234
Inavlid password
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PasswordValidation.exe
Enter your password:
Hamza
Inavlid password
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PasswordValidation.exe
Enter your password:
Hamza12345
Inavlid password
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ Hamza@1234567
Hamza@1234567: command not found
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PasswordValidation.exe
Enter your password:
Hamza@1234567
Inavlid password
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ 
```

B) Email Validation:

Code:

```
using System;

namespace System.Collections.Generic{
class Test{
    static void Main(){

    Console.WriteLine("Enter your Email:");
    string email = Console.ReadLine();

    int tmp = 0;

    // For Domain Name and last prefix
    var domain = new List<string>() {"@gmail.com", "@yahoo.com",
"@inbox.com", "@iCloud.com", "@Mail.com"};
    var sp = new List<string>() {"_", "-", ".", " ", "#", "$", "%", "^", "&", "+", "=",
"!", "~", "`", "?", "/", "\\", "|"};  // and all special characters that should not be
included
    foreach(string i in domain && string j in sp){
        int t = i.Length;
        String d = email.Substring(email.Length - t);
        if(d == i){     // comparing length of data set domain with the email
domain
            String spChr = email.Substring(email.Length - t-1);
            if(spChr.Contains(j)){  // last prefix should not be special character
                tmp--;
            } else{
                tmp++;
            }

        }

    }



    // Having first character => alphabet
    if (email[0] >= 'a' && email[0] <= 'z' || email[0] >= 'A' && email[0] <= 'Z'){
        tmp++;;
    }

    // checking special characters
    var spDanger = new List<string>() {" ", "#", "$", "%", "^", "&", "+", "=", "!",
"~", "`", "?", "/", "\\", "|"};  // and all special characters that should not be
included
```

```
    foreach(string i in spDanger){
        if(email.Contains(i)){
            tmp--;
        }
    }

    // Consective special characeters are not allowed
    var spChar2 = new List<string>() {"-.", "-_", ".-", "._", "_-", "_."};  // for two
consective  special characters aren't allowed
    foreach(string i in spChar2){
        if(email.Contains(i)){
            tmp--;
        }
    }

    if(tmp == 2){
        Console.WriteLine("Your email is: "+email);
    }
    else{
        Console.WriteLine("invalid Email");
    }




   }
}
}
```

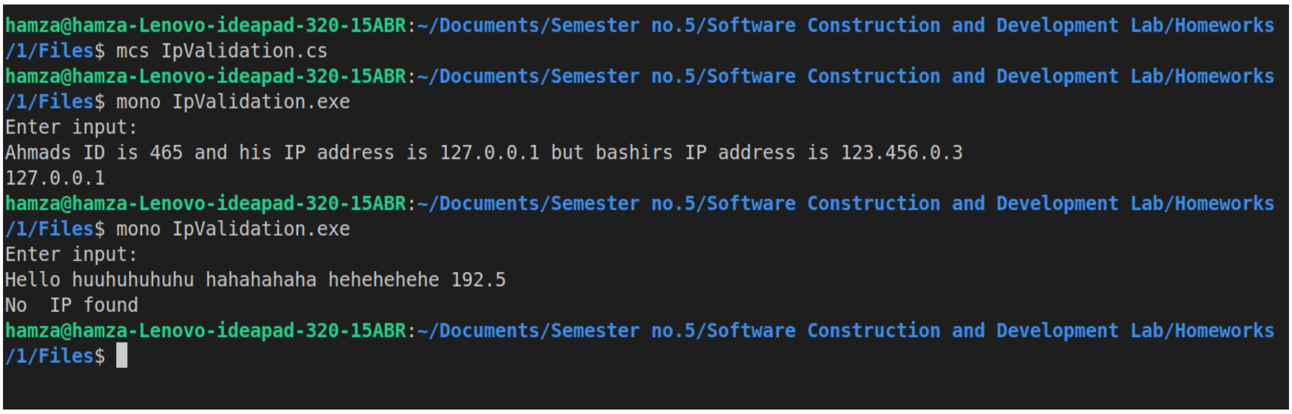
Output:

Task 02:

Code:

```
using System;
using System.Text.RegularExpressions;
using System.Text;
class Test{
   static void Main(){
    Console.WriteLine("Enter input:");
    string sourceString = Console.ReadLine();

    var match =  Regex.Match(sourceString, @"(25[0-5]|2[0-4][0-9]|1[0-9][0-9]|[0-9][0-9]?)\.(25[0-5]|2[0-4][0-9]|1[0-9][0-9]|[0-9][0-9]?)\.(25[0-5]|2[0-4][0-9]|1[0-9][0-9]|[0-9][0-9]?)\.(25[0-5]|2[0-4][0-9]|1[0-9][0-9]|[0-9][0-9]?)");

    if(match.Success)
        Console.WriteLine(match.Captures[0]);
    else
        Console.WriteLine("No  IP found");

   }

}
```

Output:



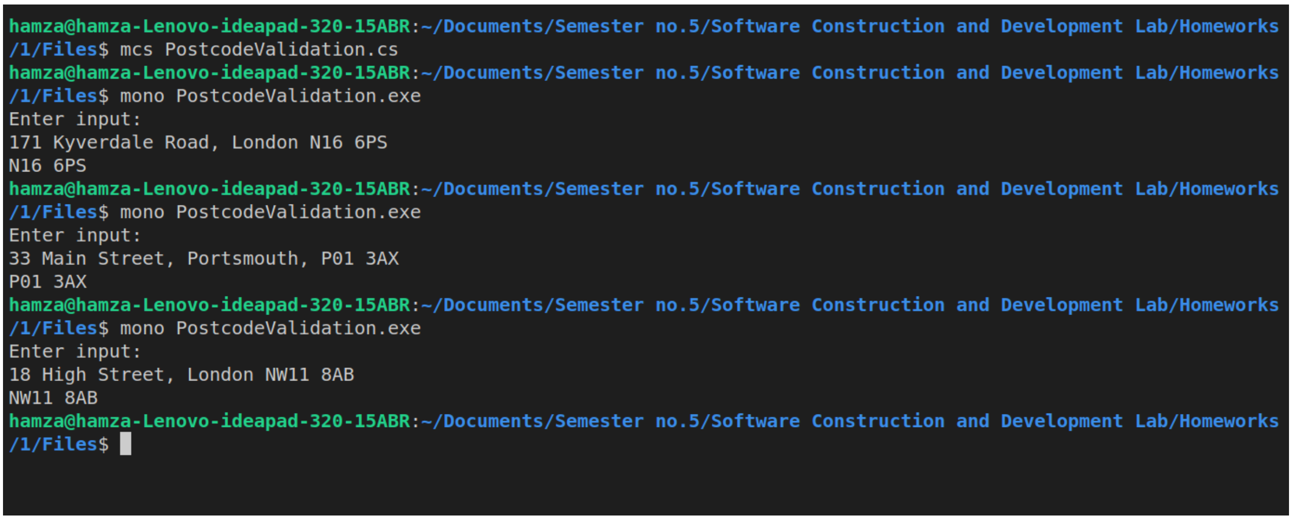
```
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mcs IpValidation.cs
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono IpValidation.exe
Enter input:
Ahmads ID is 465 and his IP address is 127.0.0.1 but bashirs IP address is 123.456.0.3
127.0.0.1
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono IpValidation.exe
Enter input:
Hello huuhuhuhuhu hahahahaha hehehehehe 192.5
No  IP found
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ 
```

Task 03:

Code:

```
using System;
using System.Text.RegularExpressions;
using System.Text;
class Test{
   static void Main(){

    Console.WriteLine("Enter input:");
    string sourceString = Console.ReadLine();
    var match =  Regex.Match(sourceString, @"[A-Z]{1,2}[0-9R][0-9A-Z]? [0-9][ABD-HJLNP-UW-Z]{2}" );

    if(match.Success)
        Console.WriteLine(match.Captures[0]);
    else
        Console.WriteLine("No Postcode address found");

  }

}
```

Output:



```
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mcs PostcodeValidation.cs
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PostcodeValidation.exe
Enter input:
171 Kyverdale Road, London N16 6PS
N16 6PS
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PostcodeValidation.exe
Enter input:
33 Main Street, Portsmouth, P01 3AX
P01 3AX
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ mono PostcodeValidation.exe
Enter input:
18 High Street, London NW11 8AB
NW11 8AB
hamza@hamza-Lenovo-ideapad-320-15ABR:~/Documents/Semester no.5/Software Construction and Development Lab/Homeworks
/1/Files$ 
```