Assignment No 2

Important Note:

- For this assignment you will use Visual Studio and upload all of the files of the solution including solution file (excluding the bin folder).
- Create separate solutions for each question
- Your Assignment should have proper Objected Oriented Programming and data structures
- Folder for each of the question should be named in the format <StudentID>_<QuestionNo> (e.g. k060195_ Q1)
- All hardcoded details should be part of the app.config files
- Last Date for Submission: **October 20, 2019**

Question No 1: String Reversal Server using Sockets

The problem is to implement a client - server application using sockets API in C#. The Server application has to support at least five clients simultaneously. Server accepts strings from clients (even multiple strings from each client) and replies with reverse strings. For example, when client sends "WORLD", Server replies with "DLROW". Both server and client(s) have to output both sending & receiving strings on the terminal. The server and client processes should be able to run on different machines. When the client application writes "exit", then it would terminate the client only.

Question No 2: Email Writer

Write a windows form application where user can write an email through a UI. User would be able to write the 'To email address', 'Subject' and 'Message' to send. Once the user has filled-in all of the details, he or she will press the send button, which will generate an XML file per email. Make sure, user should may not accidently press the submit button twice. All of the xml files will be stored in a folder defined in the configuration file (app.config) . XML output format will be as following:

```
<EmailMessage>
        <To></To>
        <Subject></Subject>
        <MessageBody></MessageBody>
</EmailMessage>
```

Question No 3: SMTP Windows Service

You have multiple applications that need to send emails to recipients. You are required to create a centralized application which could send emails using SMTP. Create a windows service which reads an XML file after every 15 minutes from a fixed location and sends email to the receipts. The XML input should same as in Question No 2:

Note: Email configurations should be included in a configuration file (app.config).

Question No 4: RSS Feed Windows Service

RSS feeds enable publishers to syndicate data automatically. A standard XML file format ensures compatibility with many different machines/programs. RSS feeds also benefit users who want to receive timely updates from favorite websites or to aggregate data from many sites. You are required to create a Windows Service which reads RSS feeds every 5 minutes from any two of the Pakistani News Web Site. The output should be stored in one xml file sorted in descending order of date/time. At every interval, It will overwrite the contents of the file. The output format should be similar to what is shown below:

```
<NewsItem>
        <Title></Title>
        <Description></Description>
        <PublishedDate></PublishedDate>
        <NewsChannel></NewsChannel>
</NewsItem>
```

Question No 5: Folder Monitor Windows Service

Folder Monitor client is supposed to track changes on a specific folder. You are required to create two windows services:

a) First service is supposed to check the specified folder every minute for any changes. If there are any changes, it should copy the new or updated files to another fixed location. If there are no changes then it should increase the delay by additional 2 minutes until it reaches 1-hour delay. The delay should not exceed 1-hour gap.

b) Second service is supposed to send email to the local user (email address would be in the configuration file). This service will check for changes in the specified folder every 15 minutes and if there is any change, it will notify the user with the filename and file Size.

Rules for Marking:

It should be clear that your assignment will not get any credit if:
- The Assignment is submitted after due date.
- The Submitted Assignment does not open or file is corrupted
- No assignment will be accepted through email.