Indian Institute of Science Education and Research Mohali

Introduction to Computers (IDC101)
Academic Session 2018-19

Lab Session - 05   September 24-28, 2018

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1. Create a file 'myfile.txt' in your current folder using `f = open('myfile.txt', 'w')`. Try following methods on `f`: `.close()`, `.write()`, `.read()`, `.read(n)`, `.readline()`, `.readlines()`, `.seek(n)`. Also try `with open('myfile.txt') as f:`

2. Create a dictionary type variable in Python and use it in some context of your choice.

3. Write a Python code to count the number of characters, words and sentences in a text file on your computer.

4. Semester performance of a student is stored in a file called 'grades.txt'. The contents of this file are something like

   ```
   Name : Amit Kulshrestha
   Roll No. : MS18241
   Course,Grade,Credits
   BIO101,B,3
   CHM101,B,3
   MTH101,B,3
   PHY101,C,3
   BIO111,B,1
   CHM111,A,1
   PHY111,D,1
   HSS101,D,2
   IDC101,C,2
   ```

   Write a Python code that appends the following line to this file.
   ```
   SPI of Amit Kulshrestha (Roll no.  MS18241) is 6.94.
   ```
   You should assume that grade to SPI conversion is as per IISER Mohali academics rules.

5. You write a letter to your best friend and save it in a file called 'letter.txt'. In order to avoid others reading this letter in an understandable way you encode it by replacing 'A' by 'B', 'B' by 'C', and so on. Write a program that creates a file called 'encodedletter.txt' which encodes 'letter.txt' as per your scheme. Now write a program that decodes the file 'encodedletter.txt'. Think of alternate schemes of encoding and challenge your classmates through moodle forum to decode your scheme. Remember that an encoding scheme should be *'invertible'*, *i.e.*, it should be possible to decode it in a *unique* manner.