

HIT137 Assignment 1, 2020

How to submit this assignment

Your submission should be written in a **single Word document**.

- Clearly label each question and any sub-sections.
- Provide maximum possible comments so the code becomes easier to read.
- Copy and paste your code into the document under each related question heading.
- Then select the section of code and under the 'Home' tab in MS Word, select 'Styles' > No Spacing. (This will remove all the extra blank lines from your code and make it easier to read.)
- Then set the font of any code to be "Consolas" or "Courier New".
- **DO NOT** include images/screen shots of code. Any images of code **will not** be marked.
- If your submission is difficult to understand, you will lose marks.
- When ready, post your **single Word document** to the Assignment Submission forum in Learnline.
- IMPORTANT TO NOTE: **DO NOT** use functions / commands to solve problems which were not taught in the class.

Question 1

Marks 05

Assume `s` is a string of numbers.

Write a program that prints the longest substring of `s` in which the numbers occur in ascending order and compute the average of the numbers found. For example, if `s = '561984235270135785310'`, then your program should print

Longest substring in numeric descending order is: 013578
Average: 4

Question 2

Mark 05

Develop a python program that will determine if a department store customer has exceeded the credit limit on a charge account. For each customer, the following facts are available:

- Account number
- Balance at the beginning of the month
- Total of all items charged by this customer this month
- Total of all credits applied to this customer's account this month
- Allowed credit limit

The program should input each of the facts, calculate the new balance (***=beginning balance + charges – credits***), and determine if the new balance exceeds the customer's credit limit. For those customers who credit limit is exceeded, the program should display the customer's account number, credit limit, new balance and the message "Credit limit exceeded". Here is a sample input/output dialogue:

```
Enter account number (-1 to end): 100
Enter beginning balance: 5394.78
Enter total charges: 1000.00
Enter total credits: 500.00
Enter credit limit: 5500.00
Account: 100
Credit limit: 5500.00
Balance: 5894.78
Credit Limit Exceeded.

Enter account number (-1 to end): 200
Enter beginning balance: 1000.00
Enter total charges: 123.45
Enter total credits: 321.00
Enter credit limit: 1500.00

Enter account number (-1 to end): -1
```

Question 3

Mark 05

Write a python program that prompts the user for the names of two text files and compare the contents of the two files to see if they are the same. If they are, the scripts should simply output “Yes”. If they are not, the program should output “No”, followed by the first lines of each file that differ from each other. The input loop should read and compare lines from each file. The loop should break as soon as a pair of different lines is found.

Note: Input file will be given by me

First file name: Master.txt

Second file name: Slave.txt

Question 4

Mark 5

Write a program that encrypts and decrypts the user input. **Note** – Your input should be only lowercase characters with no spaces.

Your program should have a secret distance given by the user that will be used for encryption/decryption. Each character of the user’s input should be offset by the distance value given by the user

For Encryption Process:

- Take the string and reverse the string.
- Encrypt the reverse string with each character replaced with distance value (x) given by the user.

For Decryption:

- Take the string and reverse the string.
- Decrypt the reverse string with each character replaced with distance value (x) given by the user.

Sample:

String input - cdu

Encryption process – udc -> xgf (encrypted)

The program should ask the user for input to encrypt, and then display the resulting encrypted output. Next your program should ask the user for input to decrypt, and then display the resulting decrypted output.

```
Enter phrase to Encrypt (lowercase, no spaces):  apples
Enter distance value: 3
Result: xgf

Enter phrase to Decrypt (lowercase, no spaces):  xgf
Enter distance value: 3
Result: cdu
```