

# Assignment 1 [25 marks]

## Exercise 1 [20 marks]

Write a cpp program call onetimepad.cpp that will perform the encryption step of a [One-time pad cipher](#). First the program will ask for the name of the file with the pad then the position (needs to be greater than zero) to start encrypting from and finally the name of the file that will be encrypted. Your program should not encrypt numbers and should remove all non-letter and non-number characters, this includes newline characters (there should be no newline characters in the encrypted file). A 3 will stay a 3, and a '.' would not be added to the encrypted file. In both cases these will not advance the position in the key. All encrypted letters should be in upper case. Your program then should print the encrypted message to the console. If your start position is longer than the pad you should print a message to the user and not encrypt the message. If you run out of letters in the pad you should stop encrypting and print out a message. **Your program should not read in and store the whole pad. Your program should be able to run on any pad and any message not just the examples given.**

1. Write at least 4 functions(you may want more)
  - a. int main()
    - i. remember to keep it as short as possible
  - b. char shiftchar(char og, char shift)
    - i. will shift over og by shift (og = 'B' and shift = 'C' will return 'D')
  - c. void getPos(int &pos)
    - i. should ask the starting position on the pad
  - d. std::string getMsg(const std::string &filename)
    - i. should return a string the contains that whole msg

Sample Output

```
vocstartsoft:~/environment/Assignment1 $ ./onetimepad
Which one time pad do you want to use
pad.txt
Enter starting position on the pad
4
What file do you want to encrypt
testFile.txt
GTZGJZUVLPPSLQMZRDKVMJAPS2GLWIVMCX
vocstartsoft:~/environment/Assignment1 $
```

```
0ND1B0MHAQKSETHCKHTAMT5ZTFVOMKEX
vocstartsoft:~/environment/Assignment1 $ ./onetimepad
Which one time pad do you want to use
pad.txt
Enter starting position on the pad
99990
What file do you want to encrypt
testFile.txt
PRZHXJINCBP
Pad ran out
```

```
vocstartsoft:~/environment/Assignment1 $ ./onetimepad
Which one time pad do you want to use
pad.txt
Enter starting position on the pad
100000000000
What file do you want to encrypt
Pad not long enough
```

## Submissions

Make sure that your code is neat and is well commented [5 marks]

Submit to D2L a zip/archive file containing the .cpp you have written.