**Assignment 1.**

**Total Marks: 30**

**Submission Deadline: Sunday 17th Oct, 2021, 11:59pm.**

**Problem Statement:**

A bank in your town updates its customers’ accounts at the end of each month. The bank offers two types of accounts: savings and checking. Every customer must maintain some minimum balance. If a customer’s balance falls below the minimum balance, there is a service charge of $10.00 for savings accounts and $25.00 for checking accounts. If the balance at the end of the month is at least the minimum balance, the account receives interest as follows: (**Disclaimer:** Interest is prohibited in Islam. It’s called ‘fighting with Allah and his prophet’ in Quran.)

1. Savings accounts receive 4% interest.
2. Checking accounts having $5,000 more balance than the minimum balance receive 5% interest; otherwise, the interest is 3%.

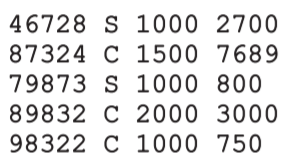
Write a program that reads inputs from a file. The file contains the following data on a single line:

1. customer’s account number (**int** type),
2. account type (**char**; s for savings, c for checking),
3. minimum balance that the account should maintain, and
4. current balance (both c and d are **double** type).

The program should then output the account number, account type, and an appropriate message with current balance (after adding the interest amount or subtracting service charges). Some of the sample outputs are given at the end of this document.

**Instructions:**

* You have to apply the analysis/design/coding steps as in the PROGRAMMING EXAMPLE: Cable Company Billing (Page: 287 of text book). The solution must be exactly in the same format and should contain all the sections as in the example (e.g. problem analysis, variables, named constants etc.). This is MANDATORY.
* Your program MUST use both switch and if-else statements at appropriate places. You can also use conditional operator, if needed.
* Use output manipulators for maintaining spaces in output of your program.
* Follow program style instructions such as indentation, meaningful variables names, comments etc.
* Handle input failure for the ‘account number’ input only. For other data, assume that the input read from file is always in the correct format.
* The program output should be formatted exactly as given below in sample outputs.
* Test your program by running it five times, using the following data. Note that these are *separate* inputs, meaning that each time you run your program, the program reads only a single line from the file. Multiple lines of data are given here only for your reference.



**Sample Outputs:**

Sample outputs for the first 3 data records above given above is as follows:

**Sample output 1:**

Account Number: 46728

Account Type: Savings

Message:

You received interest = $ 108.00 @ 4%

New Current Balance = $ 2808.00 [2700.00$ + 108.00$]

**Sample output 2:**

Account Number: 87324

Account Type: Checking

Message:

You received interest = $ 384.45 @ 5%

Current Balance = $ 8073.45 [7689.00$ + 384.45$]

**Sample output 3:**

Account Number: 79873

Account Type: Savings

Message:

You failed to maintain minimum balance.

You service changes = $ 10.00

Current Balance = $ 790.00 [800.00$ - 10.00$]