

COS 135 Individual Assignment 5

Due: Monday 02/28/22 End of the day

What to submit:

- Please submit a .zip file with source codes. Your programs must produce similar outputs as given if the same inputs are provided.

[10 pts] Comments are required in the following locations (in each C source code):

- At the top of the source code comment your name and a short program description.
- Comment the purpose of each variable.
- Comment major sections of code such as input, processing, and output.

Program Design: Your program is a professional document and must be neat and easy to read. All programs should follow these specifications.

- Comments should be aligned and entered in a consistent fashion
- Blank lines should be added to aid readability
- Code within blocks should be indented
- Comments should not contain spelling mistakes
- Variables names should be meaningful

Write C programs for following tasks and submit your source codes (you must submit .c files without compilation warnings or errors). Sample Program inputs are highlighted in yellow.

(a) **[20 pts]** On the NASA Space Shuttle, three computers were in use simultaneously. Computations were performed by all three computers, and the result of each computation was put to a vote. If at least two of the computers provided the same result, that result was then used. But if all three computers each provided a different result, then the computation was discarded.

Write a program which prompts for three different numbers, as a simulation of three different computational results. If at least two of the inputs are the same, your program should output that value. If all three inputs are different, output the word "ERROR" instead.

<u>Sample output #1:</u>	<u>Sample output #2:</u>
Enter first number: 5 Enter second number: 8 Enter third number: 5 Value: 5	Enter first number: 5 Enter second number: 8 Enter third number: 9 Value: ERROR

(b) **[20 pts]** Write a C program to request information from a user (via keyboard input) and outputs a summary statement.

In your C program, a user enters the following information of a new job applicant.

Program inputs:

New applicant's name:

New applicant's birth year:

New applicant's preferred monthly salary (USD):

Two examples (program outputs and interactive user inputs) are stated below:

Sample output # 1:

New applicant's name: Britney William

Enter applicant's birth year: 1982

Enter monthly salary (USD): 5000

Sample output #2:

New applicant's name: Curtly Ambrose

Enter applicant's birth year: 1976

Enter monthly salary (USD): 5500

Program outputs:

After obtaining the above information, the program should output following summary statements respectively:

Example 1 output:

Britney William is a 40 years old applicant and requests a monthly salary of \$5000.00

Example 2 output:

Curtly Ambrose is a 46 years old applicant and requests a monthly salary of \$5500.00

(c) [50 pts]

Mary loves to eat candies. She went to a nearby candy store to buy **N** bags of chocolates and **M** bags of toffees. Price of a bag of chocolate is \$15.50, and a bag of toffee is \$6.90. Candy store currently has a promotion: if *anyone buys more than 5 bags of chocolates will be given a 10% discount*, and *anyone buys more than 2 bags of toffees will be given a 5% discount*. Furthermore, if *Mary's grand total is more than \$100, she will be given an additional 10% discount*.

Write a program to input the number of chocolate and toffee bags then to display an itemized receipt.

Example #1:

Enter store name: Jolie's
Enter number of chocolate bags: 14
Enter number of toffee bags: 8

Program output #1:

```

Welcome to Jolie's
Chocolates      x14    $ 217.00
  after discount    $ 195.30

Toffees          x8    $  55.20
  after discount    $  52.44

Total after discount    $ 247.74
  after 10% discount    $ 222.96

                You owe    $ 222.96
                Thank you!
```

Example #2:

Enter store name: Mary's
Enter number of chocolate bags: 5
Enter number of toffee bags: 2

Program output #2:

```

Welcome to Mary's
Chocolates      x5     $  77.50
  after discount    $  77.50

Toffees          x2     $  13.80
  after discount    $  13.80

Total after discount    $  91.30
  after 10% discount    $  91.30

                You owe    $  91.30
                Thank you!
```