National University of Computer and Emerging Sciences



**Laboratory Manual**

***(Introduction to Computing)***

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| Section | A |
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**Lab Manual (2)**

***(Pseudocodes for If and nested if statements)***

**Problem 1:**

A year with 366 days is called a leap year. A year is a leap year if it is divisible by 4 (for example, 1980). However, since the introduction of the Gregorian calendar on October 15, 1582, a year is not a leap year if it is divisible by 100 (for example, 1900); however, it is a leap year if it is divisible by 400 (for example, 2000). Write a Pseudocode that asks the user to enter year. Find and show year is leap or not?

**Problem 2:**

Express an algorithm to get two numbers from the user (dividend and divisor), testing to make sure that the divisor number is not zero, and displaying their quotient

**Problem 3:**

Write a pseudocode that assigns Points, Interpretation and Grades to students according to their Marks in individual subject.

| **Grade** | **Points** | **Interpretation** | **Marks** |
| --- | --- | --- | --- |
| A | 4.00 | Excellent | >=90 and <=100 |
| A- | 3.67 | Very Good | >=85 and <90 |
| B+ | 3.33 | Very Good | >=80 and <85 |
| B | 3.00 | Good | >=75 and <80 |
| B- | 2.67 | Average | >=70 and <75 |
| C+ | 2.33 | Below Average | >=65and <70 |
| C | 2.00 | Adequate | >=60 and <65 |
| C- | 1.67 | Pass | >=55 and <60 |
| D | 1.33 | Pass | >=50 and <55 |
| F | - | Fail | <50 |

**Problem 4:**

Write a pseudocode to find the multiple of numbers. It should take two numbers from users and check that they are multiple of each other.

**Problem 5:**

Write a pseudocodefollowing the instructions given below:

* Multiply a number with another number
* Number given by user
* Multiply without using \* operator

**Problem 6:**

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 a 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:

* Savings accounts receive 4% interest.
* Checking accounts with balances of up to $5,000 more than the minimum balance receive 3% interest; otherwise, the interest is 5%.

Write a pseudocode that reads account type (savings or checking), minimum balance that the account should maintain, and current balance. The pseudocode should then output the account type, current balance, and an appropriate message

***Remember:*** *Honesty always gives fruit (no matter how frightening is the consequence); and*

*Dishonesty is always harmful (no matter how helping it may seem in a certain situation)!*