

# Pundra University of Science & Technology

Program: B.Sc. in CSE

Semester: 2<sup>nd</sup>, Batch: 26<sup>th</sup>

Mid-term Examination, Summer - 2025

Course Code: CSE 1204

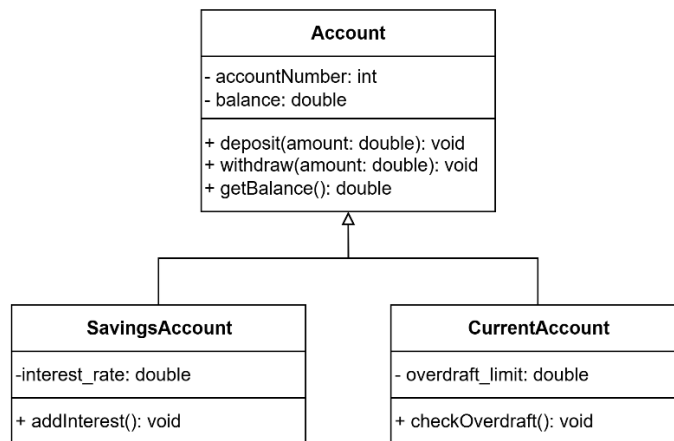
Course Title: Object Oriented Programming Language Sessional

Time: 1.50 Hour

Full Marks: 15

[Answer *all* of the following questions. Figures in the right margin indicate marks allocated for the corresponding question]

1. Write a Java program that demonstrates the different uses of the 'this' keyword. 5
2. Write a Java program that implements the structure defined in the given UML diagram. 5



3. Bob and Alice are twin siblings who love prime numbers. Their father often gives them chocolates on special occasions. They are happy only if the number of chocolates they receive is a prime number; otherwise, they start crying. 5  
One day, their father bought  $n$  chocolates. He wants to divide the chocolates between Bob and Alice in such a way that:
  1. If he can divide them equally without making them cry, he will do it.
  2. Otherwise, he must find how many different ways he can distribute the chocolates so that both Bob and Alice won't cry.

Help their father determine the correct way to distribute the chocolates.

**Input:** A single integer  $n$  — the total number of chocolates their father bought.

**Output:** If equal division is possible without making them cry, print: "Chocolate:  $x$ " where  $x$  is the number of chocolates each twin receives. Otherwise print: "Way:  $y$ " where  $y$  is the number of different ways the father can distribute the chocolate so that both twins won't cry.

**Constraints:**  $1 \leq n \leq 10^5$

**Sample Input:**

10  
15  
1

**Sample Output:**

Chocolate: 5  
Way: 2  
Way: 0

**Explanation:**

- $10 \rightarrow$  equal division possible, each gets 5.
- $15 \rightarrow$  equal division not possible, 2 valid distributions. Bob: 2, Alice: 13 or Bob: 13, Alice: 2
- $1 \rightarrow$  no valid distribution.