

#1:

a) Class, Object, Abstraction

b) A class is a set template that defines how multiple objects with a similar nature of details (for ex: Students across the globe all can be classified similarly) should behave and be structured.

An object is an instance of a class with specific values that is unique from other objects inside and out of class. Abstraction is the separation of unnecessary details from a problem in order to work at a higher level. The farther and more human-like the syntax of the language from machine code the more abstract it is.

#2:

<https://drive.google.com/file/d/1JoYVHDrAZ5mLM5TmXjmJpS123PzpyCZA/view?usp=sharing>

#3:

```
/**
 * TestAverageCalculator
 * Date: November 19, 2025
 * This application is designed to calculate the average of a set of test scores.
 * It prompts the user to input individual test scores, then computes and displays
 * the overall average. Error handling is included to ensure valid numeric input.
 *
 * @author [Karanveer Sidhu]
 */
```

#4:

```
/**
 * ClassAverageCalculator
 * Date: November 19, 2025
 * This application is designed to calculate the average of a set of student scores.
 * It prompts the user to input individual scores, then computes and displays
 * the overall average. Error handling is included to ensure valid numeric input.
 *
 * @author [Karanveer Sidhu]
 */
```

#5: package gradeCalculator;

#11: 1. Wrong comment syntax 2. Main is private not public which won't use Java Virtual Machine. 3. Main returns integer even if it should return void. 4. Within brackets, string is not capitalized which it needs to be. 5. System.out.println does not have semicolon 6. String within printed does not have ending quotation marks. 7. No date listed or sentence explaining what application is about.

# Chapter 4

1-6 and 8

1.

a) Legal:

myVariable: begins with letter and is formatted properly

userName\_1: Letters are separated by numbers

totalAmount\$: Includes letters and a dollar sign, which is a permitted character.

\_temp: Begins with an underscore, which is a valid starting character

b) Illegal:

123Variable: Can't begin with digit

my-variable: This is illegal because it contains a hyphen, a special character not allowed in identifiers.

class: Reserved word in java for classes and can't be used as a name for something.

first name: This is illegal because it contains a space.

2. a) `int numBeads; numbeads = 5;` b) `int numBeads = 5;`

3. a) 13 b) 11

4. a) `int` b) `double` c) `int` d) `double` e) `boolean` f) `char`

5. a) a primitive data type is built in. fixed size in memory. Abstract data type is often user-defined and/or complex data (classes, strings, arrays). Not the direct value but translated to machine code by operating system

b) Class is the blueprint for an object (what it is meant to do). An object is an instance of a class (an example of its use)

6. a) `displayRoster()`, `updateScore(int points)`, `displayTeamMembers()`

8. a) 9 b) 17 c) -10 d) 2 e) 8 f) 8 g) 4 h) 6 i) 12