

CS-2340-B/GR Midterm - Individual

Vudit Dharmendra Pokharna

TOTAL POINTS

58.95 / 90

QUESTION 1

1 Agile values 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#4*** is the correct answer

QUESTION 2

2 Agile Truths 0 / 2.5

+ 2.5 pts Correct

✓ + 0 pts Incorrect - ***#2*** is the correct answer

QUESTION 3

3 Sprint Review 0 / 2.5

+ 2.5 pts Correct

✓ + 0 pts Incorrect - ***#1*** is the correct answer

QUESTION 4

4 Daily Scrum 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect -

QUESTION 5

5 User Stories 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#2*** is the correct answer

QUESTION 6

6 XP 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#2*** is the correct answer

QUESTION 7

7 Regresttton 0 / 2.5

+ 2.5 pts Correct

✓ + 0 pts Incorrect - ***#1*** is the correct answer

+ 2.5 pts Correct Answer is #1, but you still get points since the question was confusing

QUESTION 8

8 Alpha Testing 0 / 2.5

+ 2.5 pts Correct

✓ + 0 pts Incorrect - ***#3*** is the correct answer

QUESTION 9

9 git checkout 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#1*** is the correct answer

QUESTION 10

10 git commit 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#3*** is the correct answer

QUESTION 11

11 Waterfall 2 / 2

✓ + 2 pts Correct

+ 0 pts Incorrect - ***#2/False*** is the correct answer

QUESTION 12

12 OOA 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#2*** is the correct answer

QUESTION 13

13 functional requirement 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#1*** is the correct answer

QUESTION 14

14 Domain Objects 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#2*** is the correct answer

QUESTION 15

15 Domain Model 0 / 3.5

+ 3.5 pts Correct

✓ + 0 pts Incorrect - ***#3 (bottom left)*** is the correct answer

QUESTION 16

16 SSD 0.45 / 2.5

✓ + 1.25 pts Correct - It is part of OOA

- 0.8 pts Incorrect - It is a part of OOD

+ 1.25 pts Correct - The system is treated as a closed blackbox

✓ - 0.8 pts Incorrect - The system is treated as an open box

- 0.9 pts Incorrect - It is a static/structural diagram

QUESTION 17

17 EBP 2.5 / 2.5

✓ + 2.5 pts Correct - The system is treated as a closed blackbox

+ 0 pts Incorrect - ***#2*** is the correct answer

QUESTION 18

18 Actor Type 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#4*** is the correct answer

QUESTION 19

19 Use Case Diagram 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#1*** is the correct answer

QUESTION 20

20 Composition 0 / 2.5

+ 2.5 pts Correct

✓ + 0 pts Incorrect - ***#3*** is the correct answer

QUESTION 21

21 Object Visibility - Attribute 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#1*** is the correct answer

QUESTION 22

22 SD - m() 0 / 2.5

+ 2.5 pts Correct

✓ + 0 pts Incorrect - ***#2*** is the correct answer

QUESTION 23

23 Object visibility truths 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - ***#3*** is the correct answer

QUESTION 24

24 Object Visibility - Parameter 2.5 / 2.5

✓ + 2.5 pts Correct

+ 0 pts Incorrect - **#2** is the correct answer

QUESTION 25

25 SD messages 1.5 / 1.5

✓ + 1.5 pts Correct

+ 0 pts Incorrect - **#2/False** is the correct answer

QUESTION 26

26 DCD - type of Diagram 0 / 1.5

+ 1.5 pts Correct

✓ + 0 pts Incorrect - **#2/False** is the correct answer

QUESTION 27

27 DCD from scenario 5 / 5

✓ + 5 pts Correct

+ 0 pts Incorrect - **#3 (lower left)** is the correct answer

QUESTION 28

28 SD purpose 0 / 2.5

+ 2.5 pts Correct

✓ + 0 pts Incorrect - **#3** is the correct answer

QUESTION 29

29 Mapping design to code 5 / 5

+ 5 pts Correct

+ 0 pts Incorrect - **#4 (lower right)** is the correct answer

✓ + 5 pts everyone gets points for this question

QUESTION 30

SD fill-in 8 pts

30.1 driver 1 / 1

✓ + 1 pts Correct

+ 0 pts Incorrect - **W/Driver** is the correct answer

30.2 opt 1 / 1

✓ + 1 pts Correct

+ 0 pts Incorrect - **X/opt** is the correct answer

30.3 [not arrived] 0 / 1

+ 1 pts Correct

✓ + 0 pts Incorrect - **U/[not arrived]** is the correct answer

30.4 A 0.5 / 1

+ 1 pts Correct

+ 0 pts Incorrect - **A, O** is the correct answer

✓ + 0.5 pts Partial Credit - **A, O** is the correct answer

30.5 C 0.5 / 1

+ 1 pts Correct

+ 0 pts Incorrect - **C, S** is the correct answer

✓ + 0.5 pts Partial Credit - **C, S** is the correct answer

30.6 E 0.5 / 1

+ 1 pts Correct

+ 0 pts Incorrect - **E** is the correct answer

✓ + 0.5 pts Partial Credit (object name should be included) - correct answer is **E**

30.7 M 1 / 1

✓ + 1 pts Correct

+ 0 pts Incorrect - **M** is the correct answer

30.8 A 0.5 / 1

+ 1 pts Correct

+ 0 pts **Incorrect - **A, P** is the correct answer

✓ + 0.5 pts Partial Credit - ***A, P** is the correct answer*

QUESTION 31

31 OOP Pillars 2.5 / 2.5

- 0.625 pts Incorrect - Separation of Concerns

✓ + 0.625 pts *Correct Inheritance*

- 0.625 pts Low Coupling

✓ + 0.625 pts *Correct - Abstraction*

✓ + 0.625 pts *Correct - Polymorphism*

- 0.625 pts Incorrect - DRY

✓ + 0.625 pts *Correct Encapsulation*

- 0.625 pts Incorrect - LGTM

QUESTION 32

32 Order of Implementation 0 / 3.5

+ 3.5 pts Correct

✓ + 0 pts *Incorrect - **#2** is the correct answer*

CS 2340 Midterm – Spring Semester 2023

Name : Vidit Pokharna

9-Digit GTID: 903772087

(print clearly including your first and last name)

(e.g. 903000000)

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- ◆ Any and all code must be in **Java**.
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- ◆ Partial credit will not be awarded for multiple selections of a non-multiple select question. All multiple select questions are identified as such. Question options marked with a [] denote a multiple select or select many question.

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Topic	# Questions	Points
1. Project Management, Development Methodologies and Best Practices	11	27
2. Object Oriented Analysis (OOA)	8	21
3. Object Oriented Design (ODD)	13	42
Total	32	90

HINT: Skim through the assessment before starting so that you know how to spend your time.

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1. Project Management, Development Methodologies and Best Practices

1. (2.5 pts) Which of the following behaviors violates Agile's values?
 - A team gathers feedback from the client at the end of a project once the minimum viable product (MVP) is completed only
 - A team prioritizes the number of class diagrams developed per project over deployed builds
 - A team refuses to change requirements (feature requests) once development has begun
 - All of the above
2. (2.5 pts) Which of these statements about Agile is **TRUE**?
 - It is an object-oriented approach to software development (development methodology)
 - It is a set of values and principles
 - It is a set of OOD principles
 - It is a set of OOA principles
3. (2.5 pts) What is done during a Scrum **Sprint Review** meeting?
 - Demo** of the increment (Sprint demo)
 - Internal discussion of the **improvements** to be applied in the next sprint
 - Items moved from a product backlog to a sprint backlog
 - All of the above
4. (2.5 pts) Who should attend the **Daily Scrum** "stand-up" meeting?
 - The development team
 - The stakeholders
 - The beta testers
 - All of above ↗
5. (2.5 pts) Which of the following is the most **correctly written** user story? (pick best answer)
 - As a CFO, I want to be able to quickly generate a balance sheet.
 - As a hotel guest user, I want to be able to cancel a hotel reservation so that I am not charged for it if I change my mind.
 - As a developer, I want to automate integration builds.
 - None of the above

6. (2.5 pts) Which of the following are **FALSE** about XP?

- Sprints tend to be short, possibly lasting only a single week.
- Every sprint is dedicated to a specific aspect of software engineering, such as testing or deployment.
- Pair programming is explicitly encouraged.
- Avoiding most software engineering jargon when communicating with clients is explicitly encouraged.

7. (2.5 pts) As a software engineer, you have just completed work on assimilating a critical feature that is used by several other features. This critical piece of code has already passed the current suite of unit tests. **What kind of testing** should be used such that you make sure that all unchanged code has not been negatively impacted by these changes?

- Regression testing
- Integration testing
- Beta testing
- Alpha testing

8. (2.5 pts) As a software developer within a company, you are currently working on a game, Frogger 2: A Race Across the River. Your game has already been through rigorous testing within your team, and your game is ready for the next phase of testing. In this step of testing, common issues not caught by your team are discovered and ironed out and this group typically has a higher tolerance for errors compared to external entities. **What kind of testing is described here?**

- Beta testing
- Developer testing
- Alpha testing
- None of the above

9. (2.5 pts) Which command is used to **switch between branches** in a repository?

- git checkout
- git clone
- git commit
- git merge
- git pull

10. (2.5 pts) Which command is used to **save your changes to the local repository**?

- git checkout
- git clone
- git commit
- git merge
- git pull

11. (2 pts) T/F: A **Waterfall** approach is best suited for projects with changing requirements.

- True
- False

2. Object Orient Analysis

12. (2.5 pts) The emphasis during Object Oriented Analysis is on describing _____ in the problem domain.

- Designs
- Conceptual classes
- Software Objects
- Software Classes

13. (2.5 pts) You are creating a website where users can sign up for a newsletter by leaving their email. The content of the website is the customer's primary priority. What **kind of requirement** is this describing?

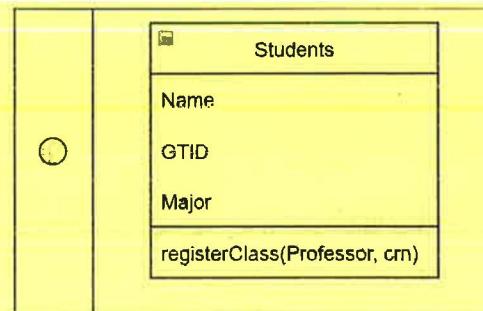
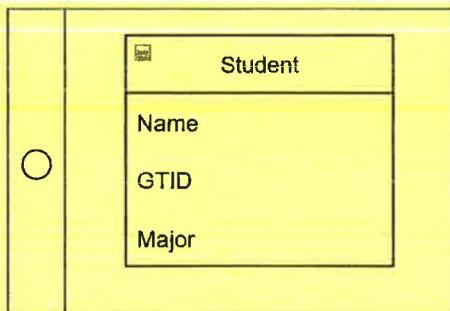
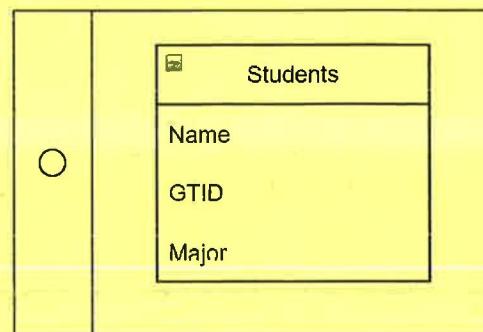
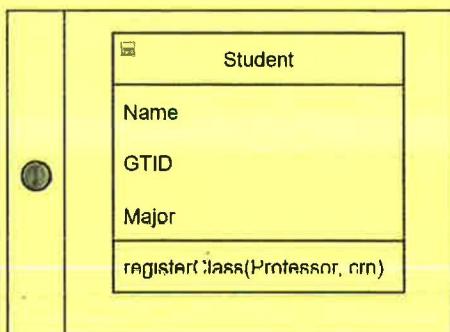
- Functional requirements
- Non-functional requirements
- Secondary requirements
- None of above

14. (2.5 pts) You brainstorm a list of entities for a restaurant reservation system. You are ready to start filtering them. Which of the following looks like **a good candidate list for the domain model**?

- Restaurant, ProfileView, Table, Patron
- Restaurant, Table, Patron, Reservation
- Restaurant, ResetPassword, Tale, Patron
- Restaurant, Table, SettingsWindow, Patron

15. (3.5 pts) Given the following scenario, which is the **best** way to represent the student in a **Domain Model**?

Scenario: You are developing an application that helps Georgia Tech students register for their classes. Students are associated with a name, unique GTID, and their majors which must be maintained in your application system. They can register for a class by specifying its CRN (course registration number) and the professor teaching it.



16. (2.5 pts) Which of the following statements are **TRUE** about a **System Sequence Diagram (SSD)**? **Mark all that apply.**

- It is part of OOA
- It is part of OOD
- The system is treated as a closed blackbox
- The system is treated as an open box and it shows how software objects interact via messages
- It is a static/structural diagram

17. (2.5 pts) Given the following use case names related to an e-commerce website, which **use case violates** the Elementary Business Process (EBP) test?

- Export sales report
- Manage orders
- Submit customer feedback
- Generate shipping label

18. (2.5 pts) Consider the course registration use case for OSCAR. University System of Georgia (USG) is a stakeholder with an interest in the use case but who is not playing an active role.

What type of **actor** is USG in this case?

- A non-functional actor
- A primary actor
- A supporting actor
- An offstage actor

19. (2.5 pts) What is the primary purpose of a **Use Case Diagram**?

- To describe what the system does at a high level and the actors involved ↵
- To show the events generated by the system for a specific use case
- To visualize conceptual classes
- To visualize software classes

3. Object Oriented Design (OOD)

20. (2.5 pts) What type of association is appropriate for modeling a relationship where the child cannot exist independently of the parent?

- Abstraction ↲
- Aggregation ↲
- Composition ↲
- Generalization ↲

21. (2.5 pts) What type of visibility is achieved from **A to B** below?

```
public class A {  
    B b;  
    public void method() {  
        new C().c();  
    }  
}
```

- Attribute visibility
- Parameter visibility
- Local visibility
- Global visibility

22. (2.5 pts) A message **m** is sent from class **A** to class **B** in a sequence diagram. When adding the corresponding operation **m()** to a class diagram, should **A** or **B** contain that operation?

- A
- B

23. (2.5 pts) Which of the following statements is TRUE about object visibility?

- Local visibility is relatively permanent visibility.
- Attribute visibility is relatively temporary visibility.
- Visibility is the ability of one object to see or have reference to another.
- None of the above

24. (2.5 pts) Given the following code, what best describes the visibility between **MyClass** and **AnotherClass**?

- Attribute
- Parameter
- Local
- Global

```
public class MyClass {  
    public void printStuffOut(AnotherClass anotherClass){  
        // do stuff with anotherClass  
    }  
}
```

```
public class AnotherClass {  
    public String format(String a, String fmt){  
        // return formatted string a  
    }  
}
```

25. (1.5 pts) T/F: In a **Sequence Diagram (SD)**, messages are only ever sent to other objects. Messages (method calls) to the same object are ignored.

- True
- False ↵

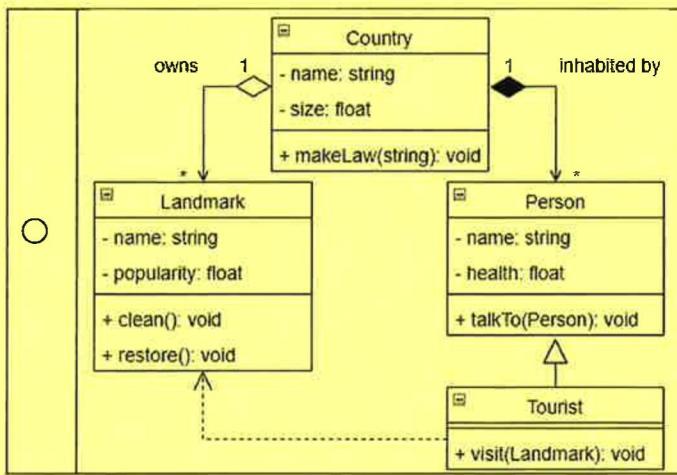
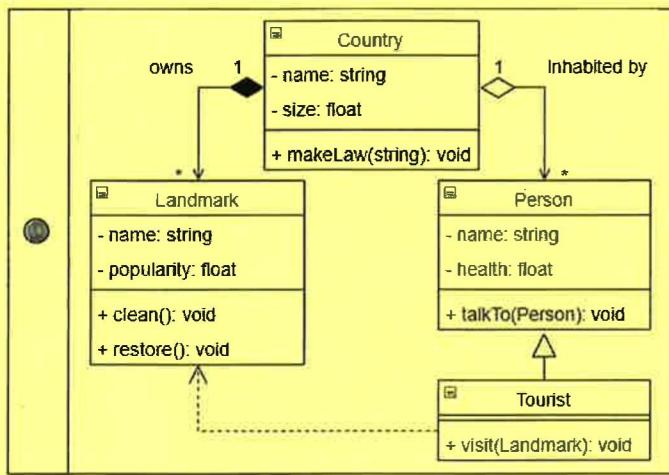
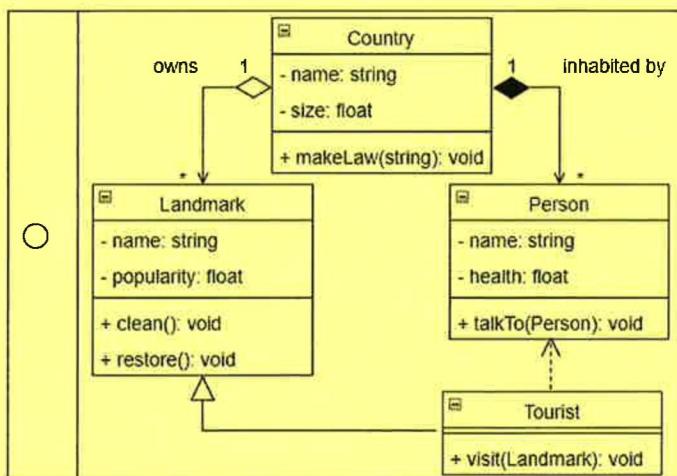
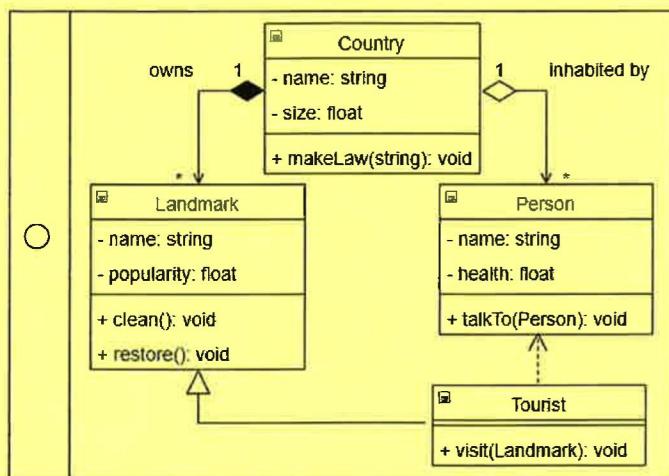
26. (1.5 pts) T/F: A UML Design Class Diagram (DCD) gives a dynamic or runtime view of the system.

True

False

27. (5 pts) Given the following scenario, which of the following diagrams is syntactically correct?

Scenario: You are developing an application that simulates public travel trends. Each country in the system has a name, size, and can write laws. Each country also owns different landmarks, which have different names and popularity levels. The landmarks must be cleaned and restored over time, and **cannot move between countries**. Countries are also inhabited by people, who have a name and health level. They are able to talk to other people. Tourists are a type of person, with the additional ability to visit landmarks.



28. (2.5 pts) What is the purpose of a Sequence Diagram (SD)?

- To show the inputs and outputs of a system
- To describe the attributes and operations between software objects
- To show object interactions arranged in time
- To describe the attributes and relationships between conceptual classes

29. (5 pts) Based on the diagram given on the last page (Figure 1), which is the most appropriate for the **Garage** class?

public class Garage {
 public List<Wheel> wheels;
 public float efficiency;
 public int numEmployees;

 public Garage(List<Wheel>
 wheels,
 String name,
 int size) {}

 private void open() {}
 protected void takeInventory()
 {}
}

public class Garage {
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 public int numEmployees;

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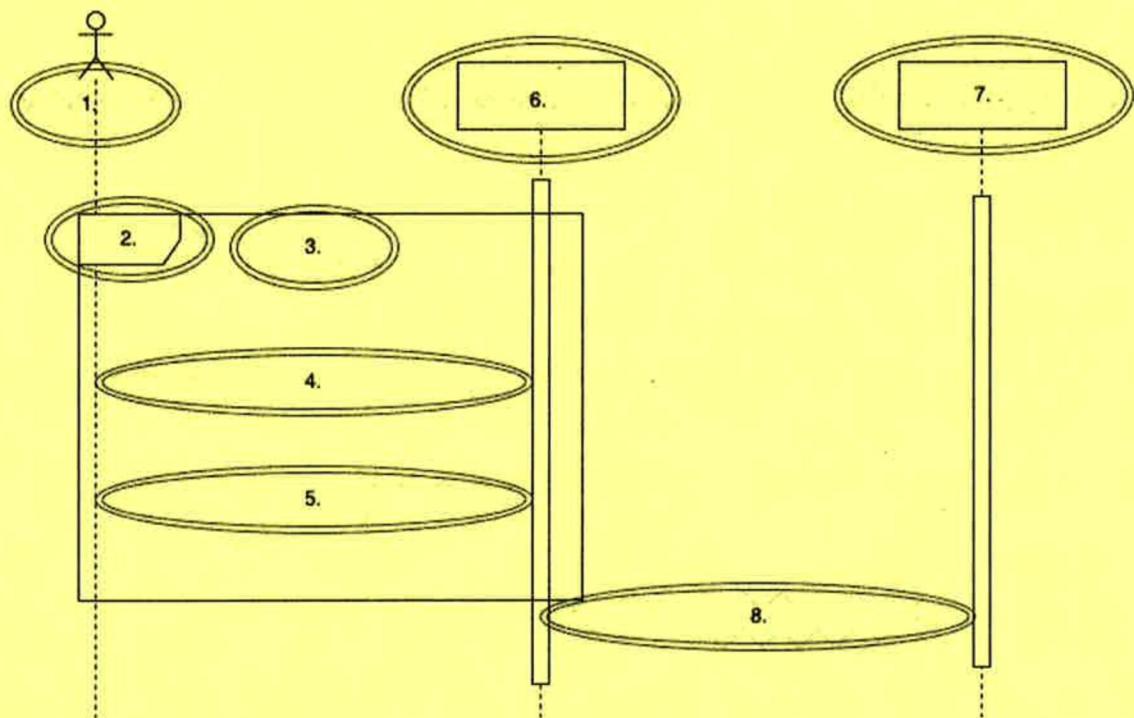
30. (8 pts) Given that there are classes named **Car** and **Wall**, complete the Sequence Diagram (SD) to illustrate the following requirements.

Write the letter of the component and/or text **on the appropriate line** that corresponds to the double oval area on the diagram. Note that there may be a component **AND** text associated with the shaded area; you must include both. The text options below are outlined in a box for clarity only, the box around the text would not appear on the diagram.

Car Driving Simulator Requirements:

- An actor labeled "Driver" initiates interaction with a specific **bmw:Car** object (the simulation may have multiple named **Car** objects).
- The **Car** class has a method **drive()** that returns the distance driven.
- The **Wall** class has a method **collideWith()** that is called and returns nothing

Answers
1. W
2. X
3. E
4. O, B
5. S, D
6. Z
7. M
8. P



Component Options	Text Options
A →	E bmw:Car U [not arrived]
B →	M :Wall W Driver
C <	O drive X opt
D <	P collideWith Y alt
	S distanceDriven Z :Car
	T NO TEXT

31. (2.5 pts) Which of the following are Object Oriented Programming (OOP) pillars? (select all)

[] Separation of Concerns

Inheritance

[] Low Coupling

Abstraction

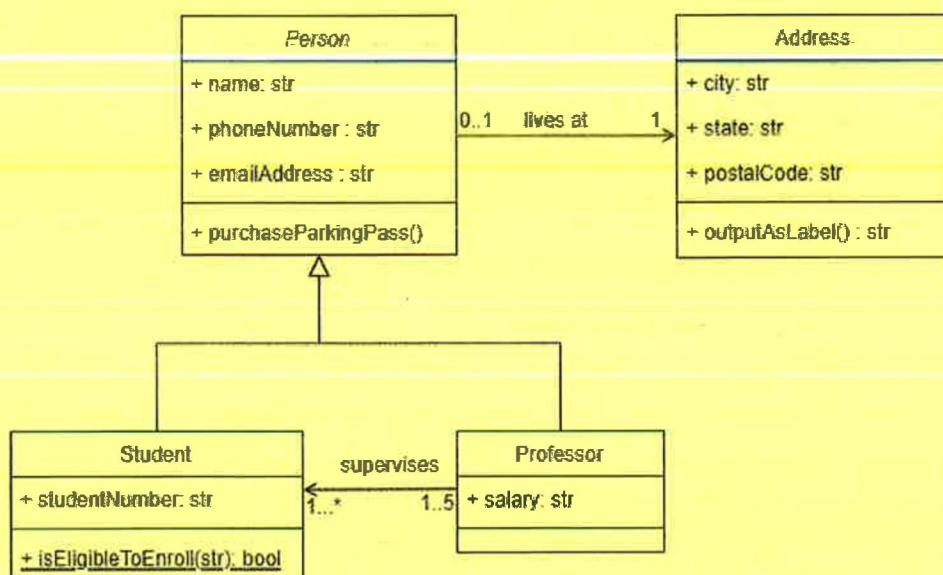
Polymorphism

[] DRY

Encapsulation

[] LGTM

32. (3.5 pts) For the Design Class Diagram (DCD) shown below, which class should be implemented first?



Person

Address

Student

Professor