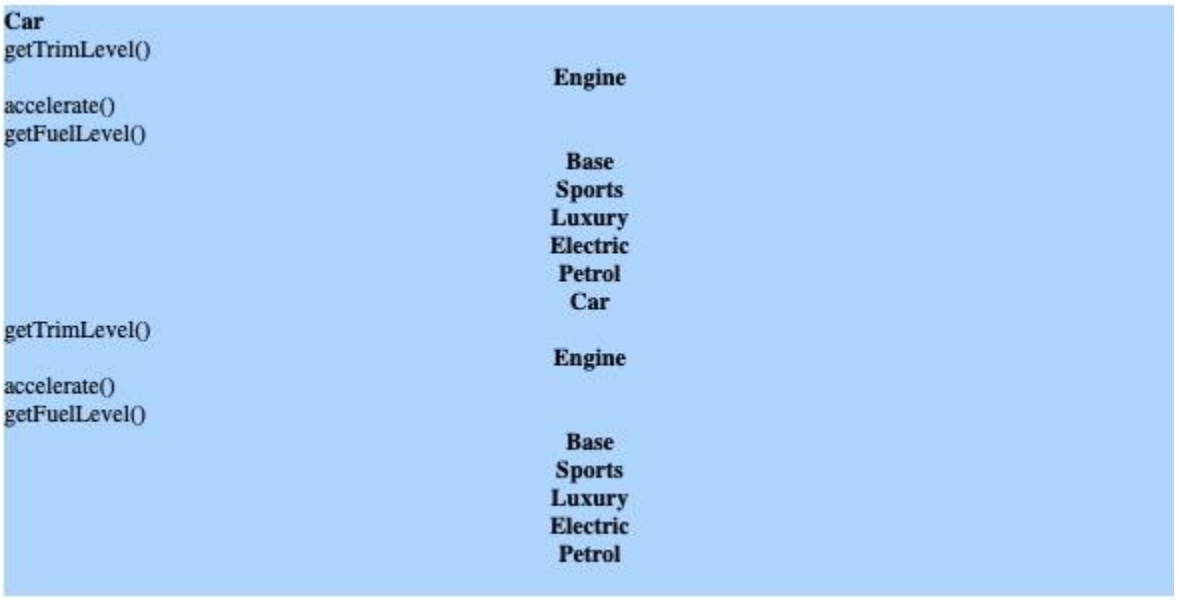
Question1:
a) Should a well-designed class have high or low cohesion? Explain and defend your answer.

A well-designed class should have high cohesion, meaning they should be focused on doing one thing very well. If a class has high cohesion then it can be relied on to do it's one purpose and it can then be paired with other high cohesion classes to create more complex things.

b) Based on your analysis, discuss—only if you believe changes are needed—how you would reorganize or redesign the class to improve its structure. Your answer should (1) identify the class as having high, low or perfect cohesion and (2) describe a general approach to refactoring the class. If you believe the class already has good cohesion, justify why no changes are necessary.

I think that the StudentPortalHelper class has low cohesion. It's name doesn't define what it does or what it's focus is. It begins with a GPA calculator but also has roster exporting, welcom emails, a method for date formatting, and more all unrelated to a clear focused task. I think there could be a StudentAccount class that has the welcome and password strength methods and that class is focused on things that pertain to the student's own account. I think the exportRosterToCsv method could go into a ClassDetails class and the computeGPA and payment processing methods could go into a StudentDetails class that will display the student's gpa and payment status.

Question 3:I uploaded a picture of the UML diagram as I wasn't sure if it was imporperly formatted but I wanted to show what I saw.



Task:

- Explain in detail why the current structure does or does not support this. (10 pts.)

- Describe how to refactor the structure to allow trim-level change for a car to dynamically change. Hint: How would you modify Car to use composition to solve the problem? (10 pts.)

Task 1)

I don't think that the current format of the UML diagram supports the given information for how cars can be described by the car manufacturer. There is no method to change the trim level of the car. I also don't think that the accelerate method is needed in the manufacturing process. There should be a getEngineType method along with the getFuelLevel method.

Task 2)

Car would have the TrimLevel and Engine properties. The TrimLevel would initialize as base and then a TrimLevel class could be added that had the method upgradeTrimLevel that will upgrade the TrimLevel up from base to sport and sport to Luxury. It would also have a

downgradeTrimLevel method to downgrade the trim level as well. The Car class could then have upgrade and downgrade TrimLevel methods that would be run as such:

Car.trimLevel.upgrade() or downgrade().

Question 5)
Discuss your personal experience using AI tools (such as ChatGPT, GitHub Copilot, or others) before and during this course. In your response, address the following points:

- How have you used AI to support your learning or programming in this course?
- What benefits or limitations did you encounter?
- Looking ahead, how do you expect AI to influence the way you solve problems academically or professionally?

Your answer should be 1–2 well-developed paragraphs.

I have largely used AI to fill in gaps of my own understanding of instructions and tasks in this course. That is if I don't know how to accomplish a task asked of me in this course I will give –mainly chatgpt the instructions and have it accomplish the task for me. I will then take what it gives me and run through it with my own understanding of what was asked of me and ensure that it was accomplished. Other ways that I use AI is like I said when I don't understand what was asked in the instructions in which I will give it what I have done that I did understand and the instructions and then ask if what I have done makes sense in terms of what was asked of me. The benefits I see from my use of AI are that I can use the information I received to then have a larger understanding of the concepts that we are going through in class. The limitations that come with the use though are that I also sometimes don't know why the AI is doing tasks the way it does. In those cases however, I ask further questions to then get an understanding of why it's doing things in the way that it is. Looking forward I see myself continuing to use AI in cases where there are tasks that are being asked of me to complete that I don't know exactly what it is that I am doing. I can ask it to create examples of the task or to do the task for me and then in the workplace ask if the response given is what was asked of me or for further clarification. It allows me to make an attempt and show that I've at least tried to get something done instead of staying stagnant and not knowing what to do. I've been told from previous internships that this is something that they like from me. That being having some attempt to show before asking for further help with a task. I believe it gives a jumping off point for discussion which can then be further refined.

Separate Link to AI Chats:
Question 2 and 4:
https://chatgpt.com/share/68f6d5f6-2284-800d-86f4-31aad0039222