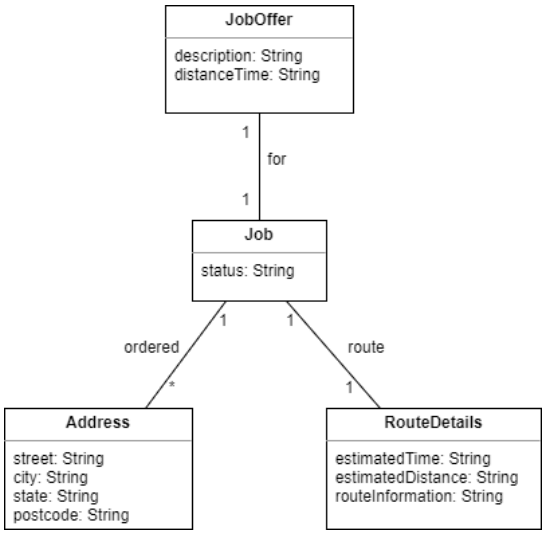
DATA MAPPING TO XML OR JSON

1) REDUCED CLASS DIAGRAM



The above class diagram is reduced my neglecting the following classes. These classes do not have a critical impact on the core workflow of the system. This can happen in various scenarios, depending on the nature of the system and how it's designed.

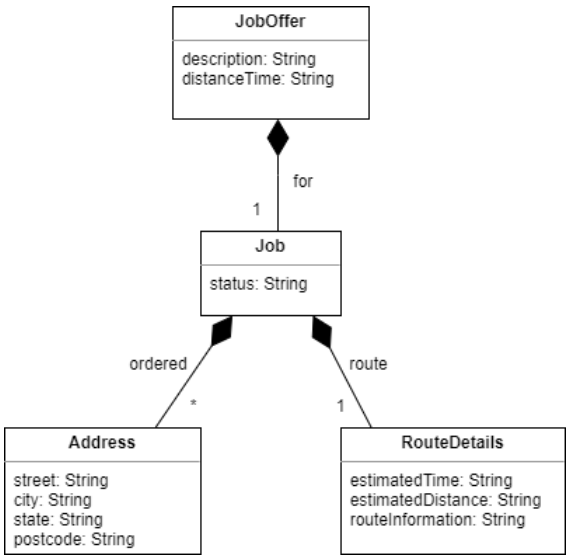
Driver Class: Removing the Driver class indicates that the system's core functionality does not heavily rely on driver-specific operations or attributes. In a transportation or delivery system, this might mean that the system is more focused on the routing, scheduling, or dispatching aspects, and less on individual driver management. The drivers are considered as external agents that do not influence the system's internal logic significantly.

Payment Class: Neglecting the Payment class implies that the payment processing or financial transactions are not central to the system's primary workflow. This could be the case in systems where payments are handled externally by another system or service, or in scenarios where payment processing is a secondary feature, not crucial to the main functionality.

Feedback Class: The absence of a Feedback class suggests that user feedback, while potentially valuable, is not integral to the system's primary operations. Feedback might be collected and analyzed separately, without direct influence on the core system processes. This might be common in systems where feedback is used for long-term improvements rather than immediate adjustments to the system's workflow.

Justification : Data capacity is reflected

2) XML - SPECIFIC CLASS DIAGRAM



Justification : data capacity is preserved

Composition relations are introduced for to-* association and to-1 associations

ChatGPT Bot Conversation:

https://chat.openai.com/share/9da9128c-5d69-41a3-9a86-4cc14e3663b9

3) DTD SCHEMA AND MAPPING STYLE

Attribute -> Element mapping

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Authenticate [
  <!ELEMENT Authenticate (Username, Password, JobOffer)>
  <!ELEMENT Username (#PCDATA)>
  <!ELEMENT Password (#PCDATA)>
  <!ELEMENT JobOffer (Description, DistanceTime, Job)>
  <!ELEMENT Description (#PCDATA)>
  <!ELEMENT DistanceTime (#PCDATA)>
  <!ELEMENT Job (Status, RouteDetails, Address*)>
  <!ELEMENT Status (#PCDATA)>
  <!ELEMENT RouteDetails (EstimatedTime, EstimatedDistance, RouteInformation)>
  <!ELEMENT EstimatedTime (#PCDATA)>
  <!ELEMENT EstimatedDistance (#PCDATA)>
  <!ELEMENT RouteInformation (#PCDATA)>
  <!ELEMENT Address (Street, City, State, Postcode)>
  <!ELEMENT Street (#PCDATA)>
  <!ELEMENT City (#PCDATA)>
  <!ELEMENT State (#PCDATA)>
  <!ELEMENT Postcode (#PCDATA)>
]>
```

Attribute-to-element mapping was selected for the DTD representation of the class diagram primarily due to its ability to accurately capture the relationships and structures outlined in the diagram. By representing classes and their properties as elements, the DTD reflects the ordered associations between entities like Job and Address, allowing for the representation of multiple addresses for a single job. Additionally, complex types like RouteDetails are best represented as elements to maintain their structure and descriptive attributes. Overall, this mapping strategy offers flexibility for future expansions and supports the dynamic nature of class relationships, ensuring that the DTD remains adaptable to evolving data requirements over time.

Justification: The Data Capacity is "extended"

The DTD schema includes an Authentication feature in addition to the existing class diagram structure.

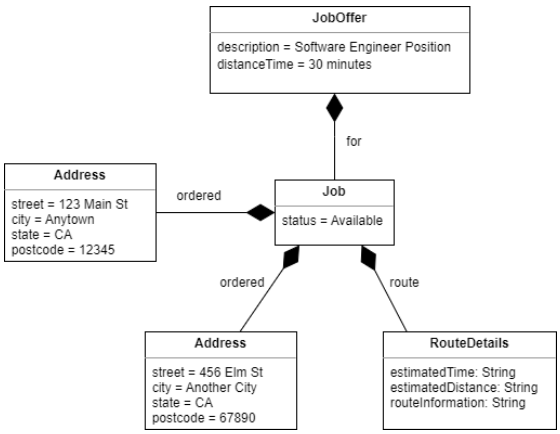
ChatGPT Bot Conversation:

https://chat.openai.com/share/2200b2e3-2aef-40e1-bb48-322bdd817a6e

4) XML INSTANCES

```
<Authenticate>
  <Username>john_doe</Username>
  <Password>password123</Password>
  <JobOffer>
    <Description>Software Engineer Position</Description>
    <DistanceTime>30 minutes</DistanceTime>
    <Job>
      <Status>Available</Status>
      <RouteDetails>
        <EstimatedTime>45 minutes</EstimatedTime>
        <EstimatedDistance>10 miles</EstimatedDistance>
        <RouteInformation>Main street to downtown</RouteInformation>
      </RouteDetails>
      <Address>
        <Street>123 Main St</Street>
        <City>Anytown</City>
        <State>CA</State>
        <Postcode>12345</Postcode>
      </Address>
      <Address>
        <Street>456 Elm St</Street>
        <City>Anothercity</City>
        <State>CA</State>
        <Postcode>67890</Postcode>
      </Address>
    </Job>
  </JobOffer>
</Authenticate>
```

OBJECT DIAGRAM



5) INSTANCES VALIDATOR