Part 1:

1-10 A passenger aircraft is composed of several millions of parts and requires thousands of

persons to assemble. A four-lane highway bridge is another example of complexity.

The first version of Word for Windows, a word processor released by Microsoft in

1989, required 55 person-years, resulted into 249,000 lines of source code, and was

delivered 4 years late. Aircraft and highway bridges are usually delivered on time and

within budget, whereas software is often not. Discuss what are, in your opinion, the

differences between developing an aircraft, a bridge, and a word processor that would

cause this situation.

First, I would like to say there are a lot of major differences between the two physical structures and the word processor. I would say the main difference between the two is individual safety or, on other words, what happens if they fail. If an aircraft or the bridge were to fail this can result in casualties of all kinds. Whereas if the word processor were to fail (at the time of conception) people would revert the proven typewriter. Thinking of it in this light can help one understand the difference. Now, you may also think that if safety is a concern, why wouldn’t a bridge or aircraft take longer and go over budget? Well, (again speaking for the time Word was created) aircraft and bridges had already been proven out. There was a set way to create them. The guidelines were in place to make sure that safety was there. When thinking about the word processor, this was new technology. Wanting to make it as user friendly as possible. The original idea and user requirements would have changed so much over time that it led to the extended timeline and more cost. In other words, “features” cost money much like material.

2-4 Draw a use case diagram for a ticket distributor for a train system. The system includes

two actors: a traveler who purchases different types of tickets, and a central computer

system that maintains a reference database for the tariff. Use cases should include

BuyOneWayTicket, BuyWeeklyCard, BuyMonthlyCard, and UpdateTariff. Also include

the following exceptional cases: TimeOut (i.e., traveler took too long to insert the right

amount), TransactionAborted (i.e., traveler selected the cancel button without

completing the transaction), DistributorOutOfChange, and DistributorOutOfPaper.

A picture containing text, diagram, font, screenshot

Description automatically generated

2-13 Draw a sequence diagram for the warehouseOnFire scenario of Figure 2-21. Include

the objects bob, alice, john, FRIEND, and instances of other classes you may need.

Draw only the first five message sends.

A picture containing text, drawing, art

Description automatically generated

3-6 Draw a UML activity diagram representing the meeting process described in

Section 3.4.1. Focus in particular on the work products generated before and after the

meeting, such as the agenda and the meeting minutes. Use swimlanes to represent

roles.

A screenshot of a computer

Description automatically generated with low confidence

Part 2:

<https://github.com/johnsonDylan106/SoftwareEngineering>