SE401 – Assignment 1.1

Solve the following questions and submit your answers to LMS.

Homework Tips Checklist for Parents

# Questions

1. You manage an online service that sells downloadable video recordings of classic movies. A typical download takes one hour, and an interrupted download must be restarted from the beginning. The number of customers engaged in a download at any given time ranges from about 10 to about 150 during peak hours. On average, your system goes down (dropping all connections) about two times per week, for an average of three minutes each time. You have the following options to improve the quality of service of your system
   1. improving the availability by reducing the unavailable time (down time) by half, or
   2. doubling the mean time between failures

If you only have the resource to do one of the above improvements, not both, which will you choose? Why?

1. A calendar program should provide timely reminders; for example, it should remind the user of an upcoming event early enough for the user to take action, but not too early. Unfortunately, “early enough” and “too early” are qualities that can only be validated with actual users. How might you derive verifiable dependability properties from the timeliness requirement?
2. We have stated that 100% reliability is indistinguishable from correctness, but they are not quite identical. Under what circumstance might an incorrect program be 100% reliable? Hint: Recall that a program may be more or less reliable depending on how it is used, but a program is either correct or incorrect regardless of usage.
3. Under what circumstance can making a system more safe make it less reliable?