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Week 3 Quiz

Week 3 Quiz

TOTAL POINTS 8

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1. Let $f(x)$ be the probability that a person with feature x dies within 5 years. **1 / 1 point**

   Let $S_x(t)$ be the survival function of a person with feature x. Assume t is measured in years.

   Which of the following is true?

   - f(x) = S_x(0)
   - f(x) = 1-S_x(5) ✓
   - $f(x) = S_x(5)$

   Correct

   Recall that S(t) is the probability that you live at least t years or more. Therefore, $S_x 5$ is the probability that you live past 5 years.

   $f(x)$ is the complement of that (probability of dying within 5 years). So it is 1 - S_x(5).

2. The survival function is always: **1 / 1 point**

   - Decreasing ✓
   - Increasing
   - Linear

   Correct

   The survival function is always decreasing. As time moves forward, it is less likely that you live for longer.

3. Which of the following is a difference between survival data and classification datasets? **1 / 1 point**

   - In survival data the labels are amounts of time and in classification data the labels are binary ✓
   - Survival data can be used to build prognostic models
   - Classification dataset contain information on other features

   Correct

   Both survival data and classification data can be used to build prognostic models (we did this last week!).

   Both types of data can contain feature information.

   Survival data includes time, and is therefore not binary, unlike classification datasets.

4. Which of the following is an example of censoring? **1 / 1 point**

   - [x] Death due to other, unrelated causes (such as an automobile accident)

   Correct

   If a person does die, but it is from an unrelated cause, all we know is that they lived up to that point, but we don't have information on whether they would have had the event (such as a heart attack) beyond that point in time.

   So this is also right censored data.

   - [x] The patient withdraws from a study before having an event, and before the study ends.

   Correct

   If a patient withdraws from a study before the study ends, their data is right censored.

   Are the other options examples of right censoring?

   - [x] Patient does not have the event by the end of the study period.

   Correct

   If a patient does not have the event by the time the study ends, that is an example of right censoring.

   Are the other options examples of right censoring?

5. Estimate $P(T > 2 | T >= 2)$ from the following dataset: **1 / 1 point**

i	T_i
1	3