CSE306 Software Quality in Practice

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ROADMAP

Monday: lecture
  ☑ process review
  ☑ interactive classroom exercise
    - put process into practice: develop code
Tuesday: lab
  ☑ individual lab exercise
    - put process into practice: develop code

Wednesday: lecture
  ☑ interactive classroom exercise - continued
    - put process into practice: develop code
Thursday: lab
  ☑ individual lab exercise
    - put process into practice: develop code
Things to focus on

Understand requirements

Use code repository

Blackbox test first (TDD)

Whitebox test implementation using coverage tool (gcov)
LEX12 feedback form

Understand requirements

Use code repository

Blackbox test first (TDD)

Whitebox test implementation using coverage tool (gcov)

LEX12 Feedback form

"Whitebox testing seems more complete than testing before implementation."
Understand requirements
Use code repository
Blackbox test first (TDD)
Whitebox test implementation using coverage tool (gcov)

They serve different purposes:
Blackbox testing reflects requirements.
Whitebox testing reflects implementation.

LEX12 Feedback form
“Whitebox testing seems more complete than testing before implementation.”
If you decide to change your implementation, your whitebox tests are likely to change (the structure of the code has changed, so tests need to update to maintain coverage).

Your blackbox tests should not (the required functionality has not changed).
Problem

My sister lives in Uppsala, Sweden. I want to chat with her. I finish dinner at 7:00 PM. Should I call her?
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Probably not, but why?
Problem

My sister lives in Uppsala, Sweden. I want to chat with her. I finish dinner at 7:00 PM. Should I call her?

Probably not, but why?

We are in different time zones!

Buffalo is in UTC-5 and Uppsala is in UTC+1.

Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Seattle?

What do you need to know to answer this question?
Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Seattle?

Buffalo is UTC-5.
Seattle is UTC-8. 7:00 PM in Buffalo = 4:00 PM in Seattle.

What do you need to know to answer this question?
Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Phoenix?

Buffalo is UTC-5.
Seattle is UTC-8. 7:00 PM in Buffalo = 4:00 PM in Seattle.
Phoenix is UTC-7. 7:00 PM in Buffalo = ??:?? in Phoenix.

What do you need to know to answer this question?
Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Phoenix?

Buffalo is UTC-5.
Seattle is UTC-8.  7:00 PM in Buffalo = 4:00 PM in Seattle.
Phoenix is UTC-7.  7:00 PM in Buffalo = 4:00 in Phoenix.

What do you need to know to answer this question?
Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Phoenix?

Buffalo is UTC-5.
Seattle is UTC-8. 7:00 PM in Buffalo = 4:00 PM in Seattle.
Phoenix is UTC-7. 7:00 PM in Buffalo = 4:00 in Phoenix.

What do you need to know to answer this question?

That’s a typo, right?
Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Phoenix?

Buffalo is UTC-5.
Seattle is UTC-8. 7:00 PM in Buffalo = 4:00 PM in Seattle.
Phoenix is UTC-7. 7:00 PM in Buffalo = 4:00 in Phoenix.

What do you need to know to answer this question?

Nope. Phoenix does not observe daylight savings time.
Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Uppsala?

Buffalo is UTC-5. Uppsala is UTC+1. Both observe daylight saving time.

If it is 7:00 PM in Buffalo, is it midnight in Uppsala.

What do you need to know to answer this question?
Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Uppsala?

Buffalo is UTC-5. Uppsala is UTC+1. Both observe daylight saving time.

If it is 7:00 PM in Buffalo, is it midnight in Uppsala.

What do you need to know to answer this question?

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Problem

Given two cities, determine the time difference between the two.

Example: What is the time difference between Buffalo and Uppsala?

Buffalo is UTC-5. Uppsala is UTC+1. Both observe daylight saving time.

If it is 7:00 PM in Buffalo, is it midnight in Uppsala.

Switch to daylight time happens on different dates.

What do you need to answer this question?
Understand requirements

Compute the time difference between two locations A and B on a given date/time at A.

Resources:
https://www.worldtimezone.com/daylight.html
https://www.worldtimezone.com

Assume there is a lookup table with the following information for a given location (such as A and B):
- timezone offset from UTC
- whether daylight saving (summer) time (DST) is observed
- start date/time of DST
- end date/time of DST
Use Code Repository

How do we start?
Use Code Repository

How do we start?

Accept this assignment:

https://classroom.github.com/a/IfVas81S

In local copy, create a new branch to add a 'time' feature, and check out that branch.
Go!

How do we start?

Some work already done in repo so you can hit the ground running.

Apply process, record your process/progress in git.

Let's see what you come up with.

Work in small groups (either those around you or your regular teammates - it doesn't matter).