Review for Quiz 1

Welcome back to CS 2100!

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Quiz 1 Topics

Git

- What is a repo? What is remote / local?
- `git clone <url>` copies the remote repo to your computer
- `git add <filename>` stages the changes in the file, and `git add .` stages all changes in the directory
- `git commit -m "message"` commits the staged changes
- `git push` pushes all local commits to the remote repo
- `git pull` copies all commits from the remote repo to your local repo which are not already there

Functions and documentation

- Documentation elements (description, arguments, returns, errors)
- Defining functions with types
- Conditionals and iteration
- `None` and `Optional`

Unit testing

- `self.assertEqual()`, `self.assertTrue()`, and `self.assertRaises()`
- Identifying test cases

We will not ask you to test functions that print things or take user input on the exam.

Git vocab

- Repository (repo): a set of code and its history
  - local: on your computer
  - remote: on another computer (like GitHub)
- Commit
  - the codebase at a given point in time (noun)
  - to add a set of changes to the repository (verb)
  - Push: to move code from a local to remote repository

Git commands

Location	Definition	git command to put code there	Postal analogy
working area	code that you are currently writing / saving in VSCode		Writing on a paper
staging area	code that is ready to be commited	`git add <filename>` or `git add .`	Add a stamp and put it in your backpack
local repository	code that has been committed	`git commit —m "description"`	Put all stamped cards in the mailbox
remote repository	code on GitHub	`git push`	Workers move cards to destinations
	copy repo from remote to local	`git clone <url>`	Buying special "letter-writing paper"
	copy all commits from remote to local which are not already there	`git pull`	Getting a copy of anything anyone else sent to your destination

Poll: Which command do we use to "download" a repo from GitHub to our laptop?

1. `git clone`
2. `git add`
3. `git commit`
4. `git push`
5. `git status`

Poll: Which command do we use to "stage" changes to be committed?

1. `git clone`
2. `git add`
3. `git commit`
4. `git push`
5. `git status`

Poll: If our local repo is ahead of the remote repo by a commit, what should we use to catch up the remote repo?

1. `git clone`
2. `git add`
3. `git commit`
4. `git push`
5. `git status`

Documentation

1. Overall description of the function

2. Arguments: type and description of each argument

3. Return: type and description of what is returned
   i. Include conditions for it to return `None`

4. Errors raised: type of error and condition to raise it

Poll: What is missing from this documentation?

```python
def sarcasm(phrase: str) -> Optional[str]:
    """Returns the sarcastic version of the provided phrase, where a random
    half of the characters are uppercase, and the others are lowercase.

    Parameters
    ----------
    phrase : str
        The phrase to turn sarcastic

    Returns
    -------
    str
        The sarcastic version of the phrase

    Raises
    ------
    ValueError: if phrase is empty

    """
    if phrase == '':
        raise ValueError()

    sarcastic_phrase = ''
    for character in phrase:
        if not character.isalpha():
            return None
        if random() < 0.5:
            sarcastic_phrase += character.upper()
        else:
            sarcastic_phrase += character.lower()
    return sarcastic_phrase
```

Unit Testing

`self.assertEqual()`

Two arguments: expected value, result of function call

```python
self.assertEqual(4, 2 + 2)
```

`self.assertThrows()`

Argument: error type, Indented section: function call

```python
with self.assertRaises(ValueError):
    get_area_of_rectangle(-1, 4)
```

`self.assertTrue()`

One argument: condition that you want to be `True`

```python
self.assertTrue(1 + 1 < 3)
```

Practice Quiz 1

Practice Quiz 1: https://github.com/neu-pdi/cs2100-public-resources/tree/main/docs/quizzes/26sp/Practice Quiz 1.pdf

Solution to Practice Quiz 1: https://github.com/neu-pdi/cs2100-public-resources/tree/main/docs/quizzes/26sp/pq1.py

Homework help: Git / command line / Pawtograder review

Helpful reminders:

- How to test functions that take user input or print things (mock the user)

- Tests in `tests/test_*.py` should pass on *anyone's* implementation, not just yours. (Don't make the tests specific to your chosen additional questions). Tests specific to your implementation should go in `tests/impl_*.py`.

- For testing additional questions (especially generic, non-specific tests), use `dict`

Poll:

1. What is your main takeaway from today?

2. What would you like to revisit next time?