

# **CptS 111 Introduction to Algorithmic Problem Solving** **(<http://piazza.com/wsu/fall2016/cpts111/home>)**

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## **PA3 Conditionals (75 pts)**

Due Monday, October 10 at Midnight.

### **Learner Objectives**

At the conclusion of this programming assignment, participants should be able to:

- Evaluate Boolean expressions
- Apply relational and logical operators
- Implement `if` statements

### **Prerequisites**

Before starting this programming assignment, participants should be able to:

- Get input from the user
- Display output to the user
- Define and call functions

### **Acknowledgments**

Content used in this assignment is based upon information in the following sources:

- No sources to cite

### **Overview and Requirements**

Write an "are you a fan" quiz program (`quiz.py`). The program will quiz the user on a topic of your choosing (keep the topic appropriate!!). For quiz ideas, check out [this website \(http://www.allthetests.com/fan-quizzes-tests-Fantests.php\)](http://www.allthetests.com/fan-quizzes-tests-Fantests.php).

Note: Please cite all sources you use in your code.

## Program Details

Your quiz must contain 10 questions. These 10 questions include **at least 2 of each of the following different types of questions**:

### Multiple choice (5 options a-e)

The user enters in a character "a" through "e" for their answer.

Example:

- ```
1) What is the a rough estimate of the population of New York City? Please enter
a character a-e.
a) 1 million
b) 3 million
c) 5 million
d) 8 million
e) 10 million
```

Note: The answer is d) 8 million!

### Numeric Response

The user enters in a numeric response to an open ended question. I recommend prompting the user to enter an integer. If you choose to use floats, be specific to the user about how they should enter their response (i.e. rounded and/or a certain number of decimal places).

Example:

```
How many states are there in the United States? Please enter an integer.
```

Note: The answer is 50!

### True/False (Boolean)

The user enters 1 or 0 in response to a statement. Convert the string returned by `input()` into an integer, and then into a Boolean with the `bool()` type cast. Then compare the response to the reserved keywords `True` or `False`.

Example:

```
Alaska was the last state to enter the Union, true or false? Please enter 1 for
True or 0 for False.
```

Note: The answer is False! Hawaii was the last state to enter the Union.

Additional requirements:

1. For each question:

**A. Define a function. The function should return the following:**

- a. 1 (int) if the user answered correctly

- b. 0 (`int`) if the user answered incorrectly
  - B. Explicitly tell the user the format in which they should enter their response.
  - C. Number each question.
  - D. Check the user's answer for correctness using an `if-else` structure. If the user answers correctly, inform the user. Otherwise, provide the correct answer to the user.
2. Define a `main()` function that drives your program. `main()` should count the number of correct answers (this is the user's quiz score).
  3. At the end of the quiz, tell the user their final score, plus a fun statement about how much of a "fan" they are of the quiz's topic (use an `if-elif-else` structure, which means you need at least 3 different fun statements based on the user's score).

## Example Run

Here is a shortened example run of a quiz based on Game of Thrones. Credit for much of the content goes to these two online quizzes: [Q1 \(http://www.allthetests.com/quiz32/quiz/1424600000/Game-Of-Thrones-Quiz\)](http://www.allthetests.com/quiz32/quiz/1424600000/Game-Of-Thrones-Quiz) and [Q2 \(http://www.allthetests.com/quiz31/quiz/1421977678/A-Song-Of-Ice-And-FireGame-Of-Thrones-Quiz\)](http://www.allthetests.com/quiz31/quiz/1421977678/A-Song-Of-Ice-And-FireGame-Of-Thrones-Quiz).

```
Welcome to the Game of Thrones Quiz!!
```

```
1) Which Dire-wolf belonged to Robb? Please enter a character a-e.
```

- a) Lady
- b) Summer
- c) Grey Wind
- d) Nimeria
- e) Ghost

```
b
```

```
Sorry, that is wrong. The answer is c) Grey Wind.
```

```
2) How many dragons does Daenerys own? Please enter an integer.
```

```
3
```

```
[output removed for brevity]
```

```
9) Name one of Daenerys' dragons. Please enter a string in all lower case.
```

```
drogon
```

```
10) Who wins the Kingsmoot on the iron isles? Please enter a character a-e.
```

- a) Asha Greyjoy
- b) Reek
- c) Balon Greyjoy
- d) Euron Greyjoy
- e) Ramsay Bolton

```
d
```

```
You scored 9 questions correctly. Wow, you know your Game of Thrones!
```

## Submitting Assignments

1. Use the Blackboard tool <https://learn.wsu.edu> (<https://learn.wsu.edu>) to submit your assignment to your TA. You will submit your code to the corresponding programming assignment under the "Content" tab. You must upload your solutions as `<your last name>_pa3.zip` by the due date and time.
2. Your .zip file should contain your .py file.

## Grading Guidelines

This assignment is worth 75 points. Your assignment will be evaluated based on a successful compilation and adherence to the program requirements. We will grade according to the following criteria:

- 30 pts for 6 functions defined to represent:
  - (10 pts) At least 2 multiple choice questions
  - (10 pts) At least 2 numeric response questions
  - (10 pts) At least 2 Boolean questions
- 5 pts for 4 functions defined to represent 4 additional questions (your choice on question type)
- 10 pts for proper use of function `return` values to denote correct/incorrect answers
- 5 pts for correct `main()` function
- 5 points for numbering questions and stating the response format in your question prompts
- 5 points for letting the user know the correct answer when they are wrong
- 10 points for displaying a message at the end of the quiz based on the number of correct responses
- 5 pts for adherence to proper programming style and comments established for the class

