

#25.4) Programming: Text-based Adventure Game

[Text-based adventure games](https://en.wikipedia.org/wiki/Text-based_game) (https://en.wikipedia.org/wiki/Text-based_game) were very popular in the 1980s, because they were easy to create and run on personal computers. In these games, players entered commands in a console (not unlike IPython) in order to explore imaginary worlds of dragons, aliens, and monsters.

For this assignment, you will create a text-based adventure game with an interactive input loop. This kind of program demonstrates one of the major use cases for `while` loops in Python, but it is also a useful chance to practice using data structures to keep track of information.

Programming Components

Your game needs to have three core components:

- Repeatedly accept player commands using the `input` function inside of a `while` loop, with a way to escape the loop by winning or losing. This will be your main game loop.
- Have player state stored in one or more variables (e.g., the current room, what items they have) that can update between iterations of the loop (e.g., moving to another room, picking up an item). This ensures that your players can go through at least multiple iterations of the main game loop.
- Meaningfully use a list and/or a dictionary. For example, you could keep track of found items in a list, or use a dictionary to keep track of game flags like "has the dragon been defeated".

Example: Dragon Realm

The Invent with Python online book has an example of a simple text-based adventure game named "[Dragon Realm](http://inventwithpython.com/chapter6.html)" (<http://inventwithpython.com/chapter6.html>) that you can use as inspiration. You are not required to model your code in the style that they do, but feel free to do so.

Although professional game developers typically use sophisticated, pre-written game engines, remember that this is meant to be a learning experience. You should only use code that you have written to develop your game. You are free to take advantage of the code constructs we have covered so far (e.g., functions, for loops), but you should not take advantage of 3rd party libraries.

Writing and Running Your Code

Developing a text-based adventure game is easier when you can test and run your game in an interactive environment like IPython. However, you will need to submit a Python file when you are finished. Therefore, you are recommended to write your code in an environment like Spyder.

If you want to test your game outside of Spyder, you can store it in a file (e.g., "studentname_game.py") and then run it in IPython using the following command.

```
%run studentname_game.py
```

Exiting Your Code

The major danger of a While loop is that infinite loops are easy to make. If you ever get caught in an infinite loop, you can usually escape by pressing CTRL+C. This is a very common way to escape programs. However, your game should have a way to end naturally. A common structure will be something like the following, which are you free to model your code around:

```
playing_game = True
while playing_game:
    command = input("What would you like to do?")
    if command == "exit":
        playing_game = False
    elif ...
        # Other actions
```

Being Creative

You are encouraged to be creative when designing your game. You are free to focus on narrative, interesting gameplay mechanics, and even ascii art, as long as you meet the programming requirements. Although it would be quite possible to complete this assignment in as little as 10 lines of Python code, you should see this as an opportunity to develop a larger-scale program.

The 10 most creative and interesting games, as judged by the course staff, will be awarded **5 points extra credit**.

Grading

To receive credit for this assignment, you must submit your functioning code as a Python file (.py) and a screenshot of your game in action. You must also include the following Honor code statement and your name as comments or string literals in your code:

"I have neither given nor received unauthorized assistance on this assignment."

Your code will be graded with a rubric:

- 3 points for using a while loop and input function.
- 3 points for having some player state tracked in a variable and updated within the loop.
- 2 points for meaningful use of a list and/or dictionary.
- 2 points for good code organization and style (good variable names, understandable code structure, etc.)

Points	10
Submitting	a file upload
File Types	py, png, jpeg, jpg, bmp, and gif

Due	For	Available from	Until
-	Everyone	-	-

Text Adventure

Criteria	Ratings		Pts
Has Interactive Loop	Full Marks 3 pts	No Marks 0 pts	3 pts
Player State is Tracked and Updated in Loop	Full Marks 3 pts	No Marks 0 pts	3 pts
Meaningfully Uses List and/or Dictionary	Full Marks 2 pts	No Marks 0 pts	2 pts
Has Good Organization and Style of Code	Full Marks 2 pts	No Marks 0 pts	2 pts
			Total Points: 10