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Computer Science 160-020

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Assignment 7

Orientation

With me just finishing half of my first quarter at Oregon State University I have faced a couple of challenges which I did not expect. The biggest challenge that I have experienced is trying to balance everything that I want to do; to overcome this, I have cut out everything that is not necessary and then started rebuilding into my schedule activities that I am able to accomplish. For example, throughout most of my high school career I went to the gym every single day but with attending Oregon State I have not had the time I wish I had to go to the gym every day. I have compromised and try to go every other day. Another challenge which I have faced is getting involved with clubs and extra-curricular activities which can help my resume. This challenge is something that I am still dealing with and is due to the first challenge of trying to balance everything. I am trying to find clubs that I can be apart of that fit my schedule of classes and homework.

I have experienced some very fun and exciting things since attending Oregon State which I was not expecting. The biggest thing which I did not expect which was fun is the passion that all the professors and TA's have about what they are teaching. It really makes learning a lot more interesting and engaging and makes me want to learn even more. I really enjoyed the different tangents which Dr. Jennifer Parham-Mocello goes on during class about aspects of computer science which show her passion for it. Another thing which was surprisingly interesting for me

was attending sporting events and the united passion that Oregon State students have for our beavers. In high school, if a certain team did not perform well no one turned out to it and ignored them so having this passion of Oregon State sports is unexpected for me.

Computation

Problem Analysis:

In this assignment we are making a program which draws four different words. There is going to be a *n* amount of possible words that can be which will be bounded from 1 to 4 inclusive. The word bank that can be selected from must contain my initials (ATM), and at least four other words. For each different character in each word needs to be drawn by its own function. For example, for the word 'able' is going to call the a function, b function, l function, and then the e function; in this order will draw the word able on the screen using turtle in python. To generate the random words is going to be its own function; this function must also handle error checking for when the user inputs an integer checking to ensure that it is between 1 and 4 and is a positive integer.

The knowledge base for this solution is going to be a basic understanding of how to select a random element from a list, checking for positive integers off of a string, getting a true or false Boolean from a string, error checking, and how to draw using turtle with python.

Program Design:

To get the computer to draw my words to the screen in random order will be based off a randomization function.

1. Define a set of random words which includes the initials (ATM)

2. Ask for the number of random words to be selected from the user
3. Check to see if each character in the input is between 0 and 9 to ensure that it's an integer
4. Check to see if the integer returned is between 1 and 4
5. Repeat steps 6 through 8, for how many times the user specified above
6. Select a random integer from 0 to the length of the set of random words
7. Check to ensure that word is not in the randomly generated words already selected
8. Append the selected word to the randomly generated words set
9. Return the set of randomly generated words to the main function
10. Ask the user if they want the letters to be uppercase or not
11. Check to see if the user returned a True or False for the uppercase
12. Iterate over the randomly selected words set
13. For each word iterate over each character
14. Check to see what the character is and call the appropriate function and pass in the turtle object and the boolean if the letter is uppercase or not
15. On words greater than length 6 or when the number of words printed on the screen is divisible by two, return the turtle to the next line

Program Testing:

Number of Words to be Generated	Positive Integer	Negative Integer	Result
Test 1	X		Prints the letters
Test 2		X	Tells the user to pick a number from 1 to 4 and re-asks the user

Test 3	X (Greater than 4)		Tells the user to pick a number from 1 to 4 and re-asks the user

True or False for Uppercase of Characters	Input	Result
Test 1	T	Returns uppercase letters
Test 2	F	Returns lowercase letters
Test 3	2	Tells the user to pick either True(T) or False(F) for the letters to be uppercase and re-asks the user for input.

Link to repl.it ***https://repl.it/@OSUmccallea/assignment7***