

Garrett Haldrup Assignment 4

Task 1:

```
garrett@PiStudent7 ~/A/A4> python3 guess_number.py
Enter your guess: 5
Correct! The answer is 5!
garrett@PiStudent7 ~/A/A4> python3 guess_number.py
Enter your guess: 3
3 is too low! Try Again!
Enter your guess: 4
4 is too low! Try Again!
Enter your guess: 5
5 is too low! Try Again!
Enter your guess: 9
9 is too low! Try Again!
Enter your guess: 10
Correct! The answer is 10!
garrett@PiStudent7 ~/A/A4> python3 guess_number.py
Enter your guess: 8
8 is too high! Try Again!
Enter your guess: 5
5 is too high! Try Again!
Enter your guess: 3
3 is too high! Try Again!
Enter your guess: 1
1 is too low! Try Again!
Enter your guess: 2
Correct! The answer is 2!
garrett@PiStudent7 ~/A/A4>
```

```
1 # Import time and random modules
2 import random
3 import time
4
5 # Set the Seed based off time
6 random.seed(time.time())
7
8 # Generate Random number 1 - 10
9 ans = random.randint(1,10)
10
11
12 while(1):
13     guess = int(input("Enter your guess: "))
14
15     if (guess == ans):
16         print(f"Correct! The answer is {ans}!")
17         break
18     elif (guess > ans):
19         print(f"{guess} is too high! Try Again!")
20     elif (guess < ans):
21         print(f"{guess} is too low! Try Again!")
22     else:
23         print(f"{guess} is invalid answer! Try Again!")
~
```

Task 2:

```
garrett@PiStudent7 ~/A/A4> python3 shopping_list.py
Add item to list?(y/n): y
Enter item name: Onions
Add item to list?(y/n): y
Enter item name: Ground Beef
Add item to list?(y/n): y
Enter item name: Buns
Add item to list?(y/n): y
Enter item name: Salt
Add item to list?(y/n): n
You have 4 items in your shopping list
['Onions', 'Ground Beef', 'Buns', 'Salt']
garrett@PiStudent7 ~/A/A4>
```

```
1 # Declare list variable
2 list = []
3
4 # Function adds value (String) to list
5 def add_item(item):
6     list.append(item)
7
8 # Function prints the list out with amount of items
9 def view_list():
10     print(f"You have {len(list)} items in your shopping list")
11     print(list)
12
13 # While loop that ends when n is inputted and breaks the loop
14 while(1):
15     # Get user input to continue or not
16     ans = input("Add item to list?(y/n): ")
17
18     # Checks if user wants to add new item to list
19     if (ans.lower() == "y"):
20         user_item = input("Enter item name: ")
21         add_item(user_item)
22     else:
23         view_list()
24         break
25
```

```
1 # Declare list variable
2 list = []
3
4 # Function adds value (String) to list
5 def add_item(item):
6     list.append(item)
7
8 # Function prints the list out with amount of items
9 def view_list():
10     print(f"You have {len(list)} items in your shopping list")
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14 while(1):
15     # Get user input to continue or not
16     ans = input("Add item to list?(y/n): ")
17
18     # Checks if user wants to add new item to list
19     if (ans.lower() == "y"):
20         user_item = input("Enter item name: ")
21         add_item(user_item)
22     else:
23         view_list()
24         break
25
```

Bonus Task:

```
garrett@PiStudent7 ~/A/A4> python3 math_quiz.py
Welcome to the Math Quiz!
All questions use ints so give your answer as an int!
Type exit to exit the program
Question 1:

4 + 39 = ?
Answer: 33
Wrong!
Correct Answer: 43
Next Question!

You have 0 so far!

Question 2:

53 * 41 = ?
Answer: 1
Wrong!
Correct Answer: 2173
Next Question!

You have 0 so far!

Question 3:

1 + 8 = ?
Answer: 9
Correct!
Good Job!

You have 1 so far!

Question 4:

98 + 21 = ?
Answer: 119
Correct!
Good Job!

You have 2 so far!

Question 5:

56 - 60 = ?
Answer: -4
Correct!
Good Job!

You have 3 so far!

You got 3 out of 6 correct!
Thanks for Playing!
garrett@PiStudent7 ~/A/A4> python3 math_quiz.py
Welcome to the Math Quiz!
All questions use ints so give your answer as an int!
Type exit to exit the program
Question 1:

66 - 19 = ?
Answer: exit
You got 0 out of 1 correct!
Thanks for Playing!
garrett@PiStudent7 ~/A/A4> 
```

```

1 # Import Modules
2 import random
3 import time
4
5 # Set the seed based on time
6 random.seed(time.time())
7
8 # Set Variables count and correct
9 count = 1
10 correct = 0
11
12 # Function that generates a random equation and returns the answer with numbers from range x to y
13 def gen_function(x,y):
14     operand = gen_operand()
15     num1 = gen_number(x,y)
16     num2 = gen_number(x,y)
17
18     ans = gen_answer(operand, num1, num2)
19     return ans
20
21 # Displays the equation to the user and calculates and returns the answer
22 def gen_answer(operand, num1, num2):
23     match(operand):
24         case 1:
25             print(f"{num1} + {num2} = ?")
26             return num1 + num2
27         case 2:
28             print(f"{num1} - {num2} = ?")
29             return num1 - num2
30         case 3:
31             print(f"{num1} * {num2} = ?")
32             return num1 * num2
33         case 4:
34             print(f"{num1} / {num2} = ?")
35             return num1 / num2
36         case 5:
37             print(f"{num1} % {num2} = ?")
38             return num1 % num2
39
40 # Generates a random number 1 to 5 that corresponds to the operand
41 def gen_operand():
42     return random.randint(1,5)
43
44 # Generates a random number for range x to y
45 def gen_number(x,y):
46     return random.randint(x,y)
47 # Intro text
48 print("Welcome to the Math Quiz!\nAll questions use \033[94mints\033[0m so give your answer as an \033[94mint\033[0m!")
49 print("Type \033[91mexit\033[0m to exit the program")
50

```

```

50
51
52 # While loop that runs for 5 iterations generating a new equation each time keeping track of answers
53 while(count <= 5):
54
55     # Shows current question and generates a new function with answer
56     print(f"Question {count}:\n")
57     ans = gen_function(1,100)
58
59     # Takes user input for the answer
60     user_ans = input("Answer: ")
61
62     # Check if user wants to exit else makes input an int
63     if(user_ans.lower() == "exit"):
64         break
65     else:
66         user_ans = int(user_ans)
67
68     # If the answer equals what the user put correct goes up 1 else just increase count
69     if(user_ans == int(ans)):
70         print(f"\033[92mCorrect!\nGood Job!\033[0m\n")
71         count += 1
72         correct += 1
73         print(f"You have \033[96m{correct}\033[0m so far!\n")
74     else:
75         print(f"\033[31mWrong!\nCorrect Answer: {int(ans)}\nNext Question!\033[0m\n")
76         count += 1
77         print(f"You have \033[96m{correct}\033[0m so far!\n")
78
79 # Displays final message showing how many correct
80 print(f"You got \033[96m{correct}\033[0m out of {count} correct!\nThanks for Playing!")
81

```

Discussion Questions

1. A loop is for when you need to iterate over one set of items, while a function is used for when you need to do same exact thing multiple times
2. I like the bonus task the most because it was the most complex program for this assignment, and I got to play around with changing output text color which was fun