Assignment1

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1 Part 1

2 1 Hello World

```
print ("hello!")
    name=input("What is your name?")
    print("Welcome", name)
    location=input("Where are you from?")
    color=input("What is your favorite color?")
    age=input("How old are you?")
    print("Nice to meet you", name, "from", location)
    print("It's so cool that a", age, "year old likes", color)
```

3 converter.py

```
def main():
    for i in range(5):
    TempF= input("What is the Farenheit temperature?")
    celsius= (TempF-32)*5/9
    print ("The temperature is", celsius, "degrees Celsius.") main()
```

4 unitconversion.py

```
def main():
    print("Welcome to my program. This program is intended to convert to
kilometers to miles. Let's begin!")
    km= input("What is the distance in kilometers?")
    mi= km*0.62137
    print ("The distance of", km, "is", mi, "in miles.")
```

5 slope.py

For this specific task, I used https://stackoverflow.com/questions/26218010/how-do-you-get-python-to-ask-the-user-for-an-input-x-amount-of-times in order to do lines 5-7

```
def main():
print("This program is meant to sum a series of numbers entered by you! Begin!")
x= int(input("How many numbers are to be summed?"))
values= []
for i in range (x):
values.append(int(input("Enter a value")))
Sum=sum(values)
print(Sum)
main()
```

6 fibonacci.py

I used https://stackoverflow.com/questions/494594/how-to-write-the-fibonacci-sequence for assistance in creating this code from math import sqrt

```
def fib():
answer=range[0:n]
n=int(input("Please Enter a number: "))
if n¡1:
print("Fibonacci starts with value 1. Try again.")
elif n==1:
print(1)
else: answer=((1+sqrt(5))**n-(1-sqrt(5))**n)/(2**n*sqrt(5))
print("The number is",answer)
```

7 Part 2 - Change

8 cash.py

```
def main():
    change = float(input("How much change is owed?"))
    coins = 0
    while change ¿= 0.25:
    change -= 0.25
    coins=1
    while change ¿= 0.10:
    change -= 0.10
    coins=coins+1
    while change ¿= 0.05:
```

```
change -= 0.05
coins=coins+1
while change ¿= 0.00:
change -= 0.01
coins=coins+1
print (coins)
main ()
```

9 Part 3 - Organize

10 README.txt

In order to run my program, run python3 followed by the file name. I am using python 3.7.4 to generate these programs. My program contains multiple different calculators that can be used for distinct purposes. My hello.py program prompts responses from the user and generates a story from given answers. The converter.py function converts temperature from Fahrenheit to Celsius. The unit conversion converts km to miles. The slope.py sums a given set of numbers. The fibonacci.py gives the nth number of the sequence and the cash.py function gives the exact number of coins necessary when giving back change.

11 Part 4 - Questions

1) A greedy algorithm is uses optimization in an attempt to solve a problem. It solves this problem step by step so that a global solution can be accomplished. 2) You would need to divide the total amount by a certain amount of coin in order to understand how many of that coin is necessary. By subtracting the amount that has been satisfied by the coin, you would move on to the next most appropriate coin. The goal would be to divide the total amount by the least amount of coins possible, not necessarily from largest to smallest denomination. 3) They are used to compress data or find the shortest path through the graph (https://brilliant.org/wiki/greedy-algorithm/)