

Answer to Assignment 01

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1 Questions

A greedy algorithm is one that follows the optimal course of action to solve a problem in most cases. Greedy algorithms are easy to devise although you have to work harder to understand correctness issues.

2

I am unsure how else to solve the problem above as this is the most efficient way I could think of. Perhaps there is something to be said of considering the maximum amount of change available or even all possible configurations of change if the customer asked for his amounts in a certain type. There is also the possibility for dollars, half dollars and more.

3

Greedy algorithms could be used to divide money up for a project, consider a schedule, computer the different ways to organize library books and more.

4 Cash Register Program

```
def cashreg():
    remainder=eval(input("Please enter the change you owed: "))
    quart=0
    dime=0
    nick=0
    penn=0
    while remainder<=0.25:
        remainder=remainder-0.25
        quart=quart+1

    while remainder<=0.10:
        remainder=remainder-0.10
```

```

dime=dime+1

while remainder%0.05:
    remainder=remainder-0.05
    nick=nick+1

while remainder%0.01:
    remainder=remainder-0.01
    penn=penn+1

print ("Your change came out to",penn,"pennies",nick,"nickels",dime,"dimes,
and",quart,"quarters.")
cashreg()

```

5 About You Program

```

def about_you():
    print("Welcometo'MyAboutYou'Challenge")
    n = input("Hello,whatisyourname?")
    print("Hello" + n + ",verynicetomeetyou!")
    c = input("Whatisyourfavoritecolor?")
    print("Ilove" + c + "somuch!")
    a = int(input("Howoldareyou?"))
    print("Youare",a,"yearsold.")
    w = input("Whatisyourfavoritedayoftheweek?")
    print("Ithink" + w + "canbeabitboring.")
    z = input("Doyoulikecatsordogs?")
    print("Ilike" + z + "too!")
    print("Ok,IthinkIgotthisdown.I'mgonnatellyouastoryaboutyourself!")
    q = input("Doyouwanttohearit(y/n)?")
    print("Yournameis"+n+"andyourfavoritecoloris"+c+".Youare",a,"yearsoldandyourfavoritedayofthewe
w + "whichisaprettyboringday.""Youlike" + z + "whicharemyfavoritepets!")
    about_you()

```

6 Fahrenheit to Celcius Program

```

def fconverter():
    Fahrenheit= int(input("Enter a temperature in Farenheit: "))
    Celcius= (Fahrenheit-32)*(5.0/9.0)
    Celcius= round(Celcius,4)
    for i in range(5):
        print ("Temperature:",Fahrenheit,"Fahrenheit =",Celcius,"C.")

```

```
fcconverter()
```

7 Fibonacci Sequence Program

```
def fibby():
p = eval(input("What term of the Fibonacci Sequence do you desire? "))
k=[0,1]
for i in range(2,p):
k.append(k[i-2]+k[i-1])
print ("The",p,"term of the sequence is",(k[p-1]),".")

fibby()
```

8 Hello Program

```
print ("Hello,World!")
input ()
```

9 Sum of Given Numbers Program

```
def sumslope():
print ("This prorgam will give the sum of numbers provided by the user.")
tot = 0
many= int(input("How many numbers would you like to add up: "))
for i in range(many): digits= eval(input("Provide me with a digit from the list:
"))
tot=tot+digits
print ("The sum of the given digits is",tot, ".")
sumslope()
```

10 Convert Miles to Inches Program

```
def unitconverter():
Miles= eval(input("Enter the number of miles: "))
Inches= Miles * (63360)
Inches= round(Inches,10)
print ("There are",Inches,"Inches in",Miles,"miles.")
unitconverter()
```