

# Assignment 1

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## 1 Introduction

## 2 Part 1:

## 3 Part 4: What is a greedy algorithm?

I used Python 3.7 1) A greedy algorithm is a simple algorithm that is used in optimization problems. It attempts to find the overall optimal way to solve the entire problem. It does not consider the consequences.

2 You could solve the problem by implementing a while loop so for instance, to find the amount of quarters you would write the following: owed

```
= float(input("How much change is owed? "))
def coins():
owed = float(input("How much change is owed? "))
quarter = 0
while owed >= .25:
owed -=.25
quarter +=1
print ("Your change:", quarter, "quarters")
```

3 Example would be Kruskal's algorithm, which finds a minimum spanning tree for a connected weighted graph that increases the cost of arcs at each step. Another example would be trying to fit a certain amount of people within a car. You would have to find a way to get big and small people to fit.