CSCE 5150 – Analysis of Computer Algorithms

Programming Assignment 3 – Greedy Alogithm

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In [20]:
```
def input_():

    n = int(input("Please enter the amount 'n' : "))

    m = int(input("Please enter the number of coin denominations : "))

    d = coin_denominations(m)
    coin_changing(m,n,d)


def coin_denominations(m):

    denominations = []
    for i in range(0, m):
        deno = int(input())
        denominations.append(deno)

    denominations.sort(reverse=True)

    print("The coin denominations are : ",denominations)

    return denominations


def coin_changing(m,n,deno):
    input_ = n
    output = []
    out = []
    for i in range(0, m):
        output.append(int(n/deno[i]))
        for j in range(0,output[i]):
            out.append(deno[i])
        n= n%deno[i]
        if n==0:
            print("The coin denominations needed for",input_, "are :",out)
            break
```

In [21]:
```
input_()
```

```
Please enter the amount 'n' : 67
Please enter the number of coin denominations : 4
25
1
5
10
The coin denominations are :  [25, 10, 5, 1]
The coin denominations needed for 67 are : [25, 25, 10, 5, 1, 1]
```

In [22]:
```
input_()
```

```
Please enter the amount 'n' : 157
Please enter the number of coin denominations : 5
25
1
5
10
50
The coin denominations are :  [50, 25, 10, 5, 1]
The coin denominations needed for 157 are : [50, 50, 50, 5, 1, 1]
```

In [23]:
```
input_()
```

```
Please enter the amount 'n' : 36
Please enter the number of coin denominations : 3
10
1
5
The coin denominations are :  [10, 5, 1]
The coin denominations needed for 36 are : [10, 10, 10, 5, 1]
```

In [24]:
```
input_()
```

```
Please enter the amount 'n' : 679
Please enter the number of coin denominations : 6
100
50
10
25
5
1
The coin denominations are :  [100, 50, 25, 10, 5, 1]
The coin denominations needed for 679 are : [100, 100, 100, 100, 100, 100, 50,
25, 1, 1, 1, 1]
```

In [ ]:
```

```