Ex. No: 3 **Date: 26.08.24**

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Greedy Algorithm

3.a. 1-G-Coin Problem

Aim: Write a program to take value V and we want to make change for V Rs, and we have infinite supply of each of the denominations in Indian currency, i.e., we have infinite supply of { 1, 2, 5, 10, 20, 50, 100, 500, 1000} valued coins/notes, what is the minimum number of coins and/or notes needed to make the change.

Input Format:

Take an integer from stdin.

Output Format:

print the integer which is change of the number.

Example Input :

64

Output:

4

Explanaton:

We need a 50 Rs note and a 10 Rs note and two 2 rupee coins.

Algorithm:

```
Int main() {
    initialize amt
    initialize count to 0

    read amt from user

    // array of currency denominations
```

```
    initialize arr as {1, 2, 5, 10, 20, 50, 100, 500, 1000}

    // loop through currency denominations from highest to lowest
    for i from 8 down to 0 {
        count = count + (amt divided by arr[i]) // calculate number of notes of current
denomination
        amt = amt modulo arr[i] // update amt to the remaining amount
    }

    print count // output the total count of notes
}
```

Program:

```
#include <stdio.h>

int main()
{
    int amt,count=0;
    scanf("%d",&amt);
    int arr[]={ 1, 2, 5, 10, 20, 50, 100, 500, 1000} ;
    for (int i=8;i>=0;i--)
    {
        count+=amt/arr[i];
        amt%=arr[i];
    }
    printf("%d",count);
}
```

Output:

	Input	Expected	Got	
✔	49	5	5	✔