21BDS0340

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BCSE101E, VL2021220107100 – TC2 (Theory)

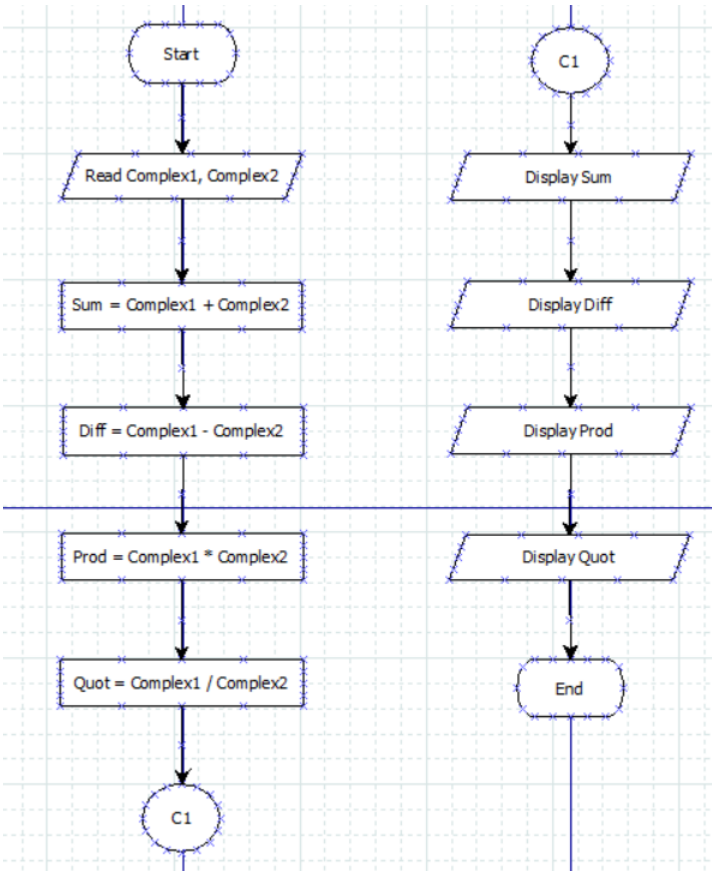
BCSE101E, VL2021220107101 – L15+L16+L29+L30 (Lab)

Question 1: Write a PAC chart, flowchart, and algorithm, for Complex calculator to find addition, subtraction, multiplication, division of given two complex numbers.

PAC:

Data	Processing	Output	Alternative Solutions
Complex1 = Read Input Complex2 = Read Input	Sum = Complex1 + Complex2 Diff = Complex1 – Complex2 Prod = Complex1 * Complex2 Quot = Complex1 / Complex2	Sum Diff Prod Quot	Define Complex1 and Complex2

Flowchart:



Algorithm:

Read Complex1, Complex2

Calculate Sum = Complex1 + Complex2

Calculate Diff = Complex1 – Complex2

Calculate Prod = Complex1 * Complex2

Calculate Quot = Complex1 / Complex2

Display Sum

Display Diff

Display Prod

Display Quot

Code:

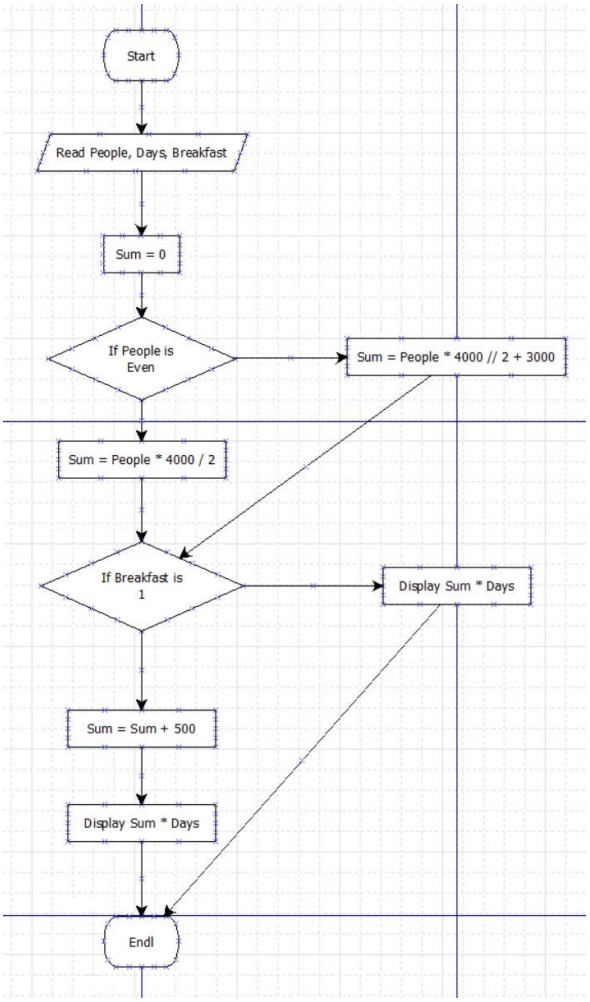
```
complex1 = complex(input())
complex2 = complex(input())

sum = complex1 + complex2
diff = complex1 - complex2
prod = complex1 * complex2
quot = complex1 / complex2

print(sum)
print(diff)
print(prod)
print(round(quot.real, 2) + round(quot.imag, 2) * 1j)
```

Question 2: Write a PAC chart, flowchart, and algorithm, for generating Resort bill. A famous resort in Ooty charges 3000 Rs per day for single person, 4000 Rs per day for double person . Take values from user: number of people, number of days to stay, generate a bill accordingly. If customer wants to include breakfast as a combo, then additional 500 Rs per day per head will be charged.

PAC:

Data	Processing	Output	Alternative Solutions
People = Read Input Days = Read Input Breakfast = Read Input Sum = 0	If People is even, then add People * 4000 / 2 to Sum Else add People * 4000 // 2 + 3000 to Sum If Breakfast = 1, then add 500 to Sum Sum = Days * Sum (for multiple days)	Sum	Define People, Days, Breakfast

Flowchart:



Algorithm:

Read People, Days, Breakfast

Initialise Sum = 0

If People is even, then

Calculate Sum = People * 4000 / 2

Else calculate Sum = People * 4000 // 2 + 3000

If Breakfast = 1, then

Calculate Sum = Sum + 500

Display Sum * Days

Code:

```
people = int(input())
days = int(input())
breakfast = int(input())
sum = 0

if people < 0 or days < 0 or breakfast < 0:
    print("Enter Only Positive Value Please!")
else:
    if people % 2 == 0:
        sum = people * 4000 / 2
    else:
        sum = people * 4000 // 2 + 3000

    if breakfast == 1:
        sum += 500

    print(sum * days)
```