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Sub: FP(Functional Programming)

Branch: CBA

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----------PRACTICAL 2----------

Question:

1. *You are developing a program that classifies a given amount of money into smaller monetary units. The program lets the user enter an amount representing a total in dollars and cents, and then outputs a report listing the monetary equivalent in dollars, quarters, dimes, nickels, and pennies, as shown in the sample run. Your program should report the maximum number of dollars, then the number of quarters, dimes, nickels, and pennies, in this order, to result in the minimum number of coins.*
   Here is a sample run:

   Enter an amount in double, for example 11.56: 11.56
   Your amount 11.56 consists of
   11 dollars
   2 quarters
   0 dimes
   1 nickels
   1 pennies

2. *Suppose you want to develop a program to play a lottery. The program randomly generates a two-digit number, prompts the user to enter a two-digit number, and determines whether the user wins according to the following rules:*
a. If the user's input matches the lottery in the exact order, the award is $10,000.
b. If all the digits in the user's input match all the digits in the lottery number, the award is $5,000.

c. If one digit in the user's input matches a digit in the lottery number, the award is $2,000

3. *Guessing Numbers: The problem is to guess what number a computer has in mind. You will write a program that randomly generates an integer between 0 and 100, inclusive. The program prompts the user to enter numbers continuously until it matches the randomly generated number. For each user input, the program reports whether it is too low or too high, so the user can choose the next input intelligently.*

Sample Run:

Guess a magic number between 0 and 100
Enter your guess: 50
Your guess is too high
Enter your guess: 25
Your guess is too low
Enter your guess: 42
Your guess is too high
Enter your guess: 39
Yes, the number is 39

✓ Source Code:

```
#_____TUSHAR's PRCTICAL 2_______
import random
import time
# ------------------1-------------
print("------------------1-------------")
amount = eval(input("Enter an amount in double, for example 12.56 : "))
remainingAmount = int(amount * 100)
numberOfOneDollars = int(remainingAmount / 100)
remainingAmount = int(remainingAmount % 100)
numberOfQuarters = int(remainingAmount / 25)
remainingAmount = remainingAmount % 25
numberOfDimes = int(remainingAmount / 10)
remainingAmount = remainingAmount % 10
numberOfNickels = int(remainingAmount / 5)
remainingAmount = remainingAmount % 5
numberOfPennies = remainingAmount

print("Your amount", amount, "consists of\n",
      "\t", numberOfOneDollars, "dollars\n",
      "\t", numberOfQuarters, "quarters\n",
      "\t", numberOfDimes, "dimes\n",
      "\t", numberOfNickels, "nickels\n",
      "\t", numberOfPennies, "pennies\n")
print("-----------------------------------")


# ------------------2-------------
print("------------------2-------------")
user_num = 0
#lottery_num=random.randint(10,99)
lottery_num = 12

print("****Welcom to Lottery Program*****")
user_num = int(input("Please Enter a your two digit lottery number :"))
```

```
print("Calculating Results....")
for i in range(3):
    time.sleep(1)
    print(".")

    # calculate and output
    lottery_tens = lottery_num // 10
    lottery_ones = lottery_num % 10

    user_tens = user_num // 10
    user_ones = user_num % 10

    if lottery_num == user_num:
        print("All your numbers match in exact order! Your reward is $10,000!\n")
        break
    elif lottery_tens == user_ones and lottery_ones == user_tens:
        print("All your numbers match! Your reward is $5,000!\n")
        break
    elif lottery_tens == user_tens or lottery_ones == user_ones \
      or lottery_ones == user_tens or lottery_tens == user_ones:
        print("One of your number match the lottery. Your reward is $2,000\n")
        break
    else:
        print("Your numbers not match! sorry!!\n")
        print("BETTER LUCK NEXT TIME... ")
        print("-------------------------------------")
        break

# ------------------3-------------
print("------------------3-------------")
n = random.randint(0, 99)
guess = int(input("Enter your guess :"))
while True:
    if guess < n:
        print("Your guess is too low")
        guess = int(input("Enter your guess :"))
    elif guess > n:
        print("Your guess is too high")
        guess = int(input("Enter your guess :"))
    else:
        print("You guessed it right!!")
        print("Yes, the number is ", guess)
        print("-------------------------------------")
        break
```

✓Output:

Q.1:

```
------------------1-------------
Enter an amount in double, for example 12.56 : 11.56
Your amount 11.56 consists of
         11 dollars
         2 quarters
         0 dimes
         1 nickels
         1 pennies

-------------------------------------
```

Q.2:

When all numbers match in exact order:

```
------------------2-------------
****Welcom to Lottery Program*****
Please Enter a your two digit lottery number :12
Calculating Results....
.
All your numbers match in exact order! Your reward is $10,000!
```

When all numbers match :

```
------------------2-------------
****Welcom to Lottery Program*****
Please Enter a your two digit lottery number :21
Calculating Results....
.
All your numbers match! Your reward is $5,000!
```

When one of the number match the lottery:

```
------------------2-------------
****Welcom to Lottery Program*****
Please Enter a your two digit lottery number :13
Calculating Results....
.
One of your number match the lottery. Your reward is $2,000
```

Q.3:

```
------------------3-------------
Enter your guess :27
Your guess is too low
Enter your guess :65
Your guess is too high
Enter your guess :55
Your guess is too high
Enter your guess :45
Your guess is too high
Enter your guess :33
Your guess is too high
Enter your guess :30
You guessed it right!!
Yes, the number is  30
---------------------------------
```