LAB: Exact change – functions

Define a function called exact_change that takes the total change amount in cents and calculates the change using the fewest coins. The coin types are pennies, nickels, dimes, and quarters. Then write a main program that reads the total change amount as an integer input, calls exact_change(), and outputs the change, one coin type per line. Use singular and plural coin names as appropriate, like 1 penny vs. 2 pennies. Output "no change" if the input is 0 or less.

Case1 : If the input is:

`0`(or less),

the output is:

```
no change
```

Case 2:

If the input is:

```
47
```

the output is:

```
2 pennies
2 dimes
1 quarter
```

Case 3:

If the input is:

```
 136
```

the output is:

```
1 penny
1 dime
5 quarters
```

Your program must define and call the following function. The function exact_change() should return num_pennies, num_nickels, num_dimes, and num_quarters.

`def exact_change(user_total)` main.py

```
# Define your function here
```

if __name__ == '__main__': input_val = int(input()) num_pennies, num_nickels,

num_dimes, num_quarters = exact_change(input_val)

in_class_activity.py

```python
def exact_change(cents):

    if cents == 0:
        return "no change"

    else:
        quarter = cents // 25
        rem1 = cents % 25
        dime = rem1 // 10
        rem2 = rem1 % 10
        nickel = rem2 // 5
        rem3 = rem2 % 5
        penny = rem3

        return penny, nickel, dime, quarter


def main():
    input_val = int(input("Cents: "))
    num_pennies, num_nickels, num_dimes, num_quarters = exact_change(input_val)

    to_print = {}

    if num_pennies == 0:
        pass
    elif num_pennies == 1:
        to_print["penny"] = num_pennies
    else:
        to_print["pennies"] = num_pennies

    if num_nickels == 0:
        pass
    elif num_nickels == 1:
        to_print["nickel"] = num_nickels
    else:
        to_print["nickels"] = num_nickels

    if num_dimes == 0:
        pass
    elif num_dimes == 1:
        to_print["dime"] = num_dimes
    else:
        to_print["dimes"] = num_dimes

    if num_quarters == 0:
        pass
    elif num_quarters == 1:
        to_print["quarter"] = num_quarters
    else:
        to_print["quarters"] = num_quarters

    for denomination in to_print:
        print(f"{to_print[denomination]} {denomination}")


if __name__ == "__main__":
    main()
```

```
PS E:\git\cs-gsu\csc1301\lab\10> python .\in_class_activity.py
Cents: 47
2 pennies
2 dimes
1 quarter
PS E:\git\cs-gsu\csc1301\lab\10> python .\in_class_activity.py
Cents: 136
1 penny
1 dime
5 quarters
PS E:\git\cs-gsu\csc1301\lab\10>
```

LAB: Swapping variables

Define a function named swap_values that takes four integers as parameters and swaps the first with the second, and the third with the fourth values. Then write a main program that reads four integers from input, calls function swap_values() to swap the values, and prints the swapped values on a single line separated with spaces.

Ex: If the input is:

```
3
8
2
4
```

function swap_values() returns and the main program outputs:

```
8 3 4 2
```

The program must define and call the following function.

```
def swap_values(user_val1, user_val2, user_val3, user_val4)
```

main.py

```
# Define your function here.

if __name__ == '__main__':
    # Type your code here. Your code must call the function.
```

in_class_activity_B.py

```python
def swap_values(user_val1, user_val2, user_val3, user_val4):
    _user_val1 = user_val1
    user_val1 = user_val2
    user_val2 = _user_val1

    _user_val3 = user_val3
    user_val3 = user_val4
    user_val4 = _user_val3

    return (user_val1, user_val2, user_val3, user_val4)


def main():
    first = input("Enter first integer: ")
    second = input("Enter second integer: ")
    third = input("Enter third integer: ")
    fourth = input("Enter fourth integer: ")

    _first, _second, _third, _fourth = swap_values(first, second, third, fourth)
    print (f"Swapped: {_first} {_second} {_third} {_fourth}")

if __name__ == '__main__':
    main()
```

PROBLEMS DEBUG CONSOLE TERMINAL

```
PS E:\git\cs-gsu\csc1301\lab\10> python .\in_class_activity_B.py
Enter first integer: 3
Enter second integer: 8
Enter third integer: 2
Enter fourth integer: 4
Swapped: 8 3 4 2
PS E:\git\cs-gsu\csc1301\lab\10>
```
