Task Title: Simple Food Billing Program

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1. Task Overview

This task helps simulates simple billing system for food orders. The system:

1) Accepts customer details
2) Displays a menu
3) Takes two food item orders with quantity
4) Calculates and displays total bill

It helps in understanding Python basics such as

1) Python data structures (dictionary, tuple)
2) Variables for assigning customer details, in loops, storing results of arithmetic operations etc.
3) Arithmetic operations for billing (+,*)
4) print() and input() functions

2. Tools & Concepts Used

1) Python
2) input(), print() functions
3) Tuples and Dictionaries
4) Arithmetic operations
5) for loops
6) Accessing Dictionary Elements using **in** operator.

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3. Source Code

```
name = input("Enter your Name: ")
ph_no = int(input("Enter phone number: "))
customer = (name,ph_no)

menu = {
  "Meat Roll" : 35,
  "Burger" : 90,
  "Mango Shake" : 75,
  "Chocolate Falooda" : 100,
  "Loaded Fries" : 80
}

print("\t\t Menu \t\t")
for i in menu:
  print(i," - ",menu[i],"₹")

print("Pick 2 items.....")
total_items  = {}
for i in range(2):
  item = input(f"Enter item {i+1}: ")
  qty = int(input("Quantity: "))
  total_items[item] = qty

total=0
print("\t\t BILL \t\t")
print("Customer: ",customer)
for key in total_items:
  item_total = menu[key]*total_items[key]
  print(key,' x ',total_items[key],' = ',item_total," ₹ ")
  total+=item_total

print("Total: ",total,"₹")
```

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4. Program Output

Order 1:

Input:

```
Enter your Name: Jacob Sam
Enter phone number: 8714712258
                Menu
Meat Roll  -  35 ₹
Burger  -  90 ₹
Mango Shake  -  75 ₹
Chocolate Falooda  -  100 ₹
Loaded Fries  -  80 ₹
Pick 2 items..........
Enter item 1: Meat Roll
Quantity: 1
Enter item 2: Loaded Fries
Quantity: 2
```

Output:

```
                BILL
Customer:  ('Jacob Sam', 8714712258)
Meat Roll  x  1  =  35  ₹
Loaded Fries  x  2  =  160  ₹
Total:  195 ₹
```

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Order 2:

Input:

```
Enter your Name: Mathew King
Enter phone number: 6845871287
                Menu
Meat Roll  -  35 ₹
Burger  -  90 ₹
Mango Shake  -  75 ₹
Chocolate Falooda  -  100 ₹
Loaded Fries  -  80 ₹
Pick 2 items..........
Enter item 1: Burger
Quantity: 2
Enter item 2: Chocolate Falooda
Quantity: 2
```

Output:

```
                BILL
Customer:  ('Mathew King', 6845871287)
Burger  x  2  =  180  ₹
Chocolate Falooda  x  2  =  200  ₹
Total:  380 ₹
```

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5. Explanation of Logic

```
name = input("Enter your Name: ")
ph_no = int(input("Enter phone number: "))
customer = (name,ph_no)
```

The name and phone number of the customer is collected and stored in a tuple (Customer) using the input() function; int() is used to read only integers.

```
menu = {
  "Meat Roll" : 35,
  "Burger" : 90,
  "Mango Shake" : 75,
  "Chocolate Falooda" : 100,
  "Loaded Fries" : 80
}
```

A dictionary called ‘menu’ is used to store the menu items.

```
print("\t\t Menu \t\t")
for i in menu:
  print(i," - ",menu[i],"₹")
```

Prints the Menu in a structured format using a for loop

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```
print("Pick 2 items.....")
total_items  = {}
for i in range(2):
  item = input(f"Enter item {i+1}: ")
  qty = int(input("Quantity: "))
  total_items[item] = qty
```

1.A dictionary ‘total_items’ is initialized to store the ordered items which is 2.

2. Using a for loop upto 2 items along with their quantity are accepted from the user and stored into the dictionary ‘total_items’.

```
total=0
print("\t\t BILL \t\t")
print("Customer: ",customer)
for key in total_items:
  item_total = menu[key]*total_items[key]
  print(key,' x ',total_items[key],' = ',item_total," ₹ ")
  total+=item_total

print("Total: ",total,"₹")
```

1. ‘total’ variable is initialized to store the total price of items
2. The item_total variable calculates the items total price by price * quantity
3. The customer tuple is printed containing the customer details such as name and phone number.
4. By accessing the **menu** and **total_items** dictionary itemized bill is printed.
5. After each access the total is incremented by the item_total
6. The total amount is printed

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6. Challenges Faced

Dictionary based challenges:

1) Printing **menu** in a structured format including the price.

Fix:

Used a for loop using in operator

```
for i in menu:
  print(i," - ",menu[i],"₹")
```

2) Accessing Dictionary Elements to display Item and its quantity from a dictionary called total_items and also calculating item_total using another dictionary called menu.

Fix:

```
for key in total_items:
  item_total = menu[key]*total_items[key]
  print(key,' x ',total_items[key],' = ',item_total," ₹ ")
  total+=item_total
```

7. Conclusion

This task helped me to understand:

1) How to prompt the user with custom requirements to accept inputs from the user in various data types, like int,float,boolean etc.
2) To store what type of data where, using the built-in data structures in python such as dictionary and tuples in structured format.
3) The billing logic in real-world implementation in python to solve real world problems. such as calculating total item price = price * quantity,
   Total Bill = sum of all item price.