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Domain: Python

Third Week Task

Hands-On Practice:

1. **Create functions for common calculations (area, volume, conversions).**

   CODE:

```
print()
print("*" *90)
print("\t\t\tTo use functions for common calculations")
print("*" *90,"\n")
while True:
print("***** Select option which you want to perform operation *****\n")
print("1. To Calculate Area")
print("2. To Calculate Volume")
print("3. To Unit Conversion")
print("4. Exit","\n")

ch=int(input("Enter Your Choice: "))
if(ch == 1):
def cal_area(length, width):
area=length * width
return area

length=int(input("Enter Length of Rectangle: "))
width=int(input("Enter Width of Rectangle: "))
```

```
print()
print("Area of Rectangle: ",cal_area(length,width)," cm")
print()

elif(ch == 2):
def cal_volume(side):
return side * side * side
side=int(input("Enter the side of the Cube: "))
print()
print("Volume of Cube: ",cal_volume(side),"cm")
print()
elif(ch == 3):
def cm_to_meter(cm):
return cm / 100
cm = float(input("Enter cm unit to conversion in meter Unit: "))
print("Meters unit is: ", cm_to_meter(cm))
print()
elif(ch == 4):
break
else:
print("Invalid Choice.. please try again.")
print()
print("-"*90)
print("\t\t\t\tThanks for visiting my Function CODE.")
print("-"*90,"\n")
```

OUTPUT:

```
PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\co
********************************************************************************
                        To use functions for common calculations
********************************************************************************

***** Select option which you want to perform operation *****

1. To Calculate Area
2. To Calculate Volume
3. To Unit Conversion
4. Exit

Enter Your Choice: 1
Enter Length of Rectangle: 10
Enter Width of Rectangle: 5

Area of Rectangle:  50  cm

***** Select option which you want to perform operation *****

1. To Calculate Area
2. To Calculate Volume
3. To Unit Conversion
4. Exit

Enter Your Choice: 2
Enter the side of the Cube: 4

Volume of Cube:  64 cm

***** Select option which you want to perform operation *****

1. To Calculate Area
2. To Calculate Volume
3. To Unit Conversion
4. Exit
```

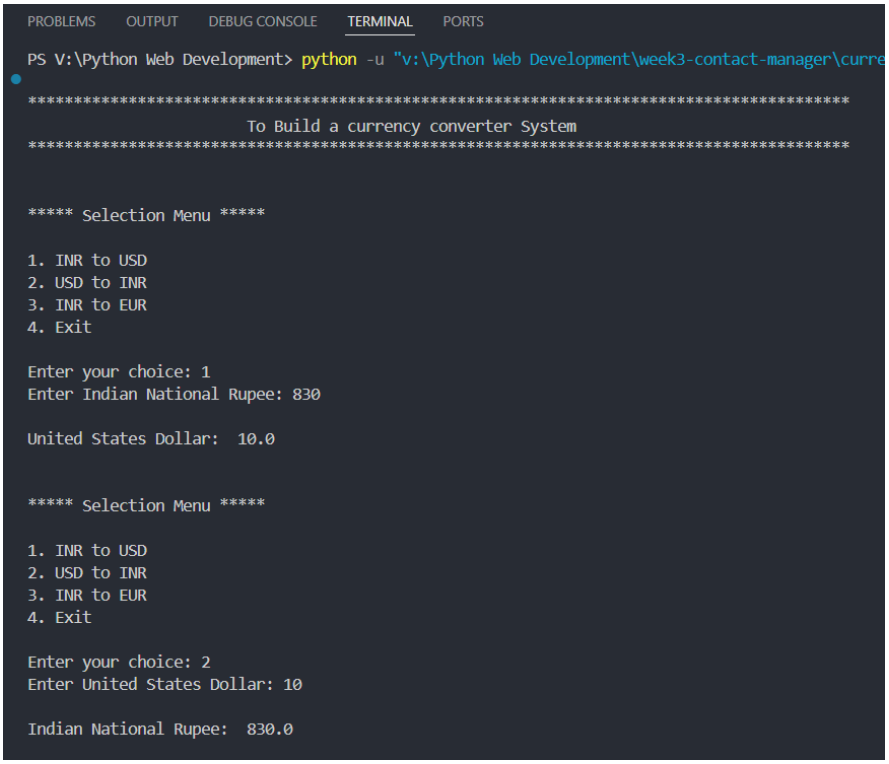
```
Enter Your Choice: 2
Enter the side of the Cube: 4

Volume of Cube:  64 cm

***** Select option which you want to perform operation *****

1. To Calculate Area
2. To Calculate Volume
3. To Unit Conversion
4. Exit

Enter Your Choice: 3
Enter cm unit to conversion in meter Unit: 100
Meters unit is:  1.0

***** Select option which you want to perform operation *****

1. To Calculate Area
2. To Calculate Volume
3. To Unit Conversion
4. Exit

Enter Your Choice: 4

--------------------------------------------------------------------------------
                            Thanks for visiting my Function CODE.
--------------------------------------------------------------------------------

PS V:\Python Web Development>
```

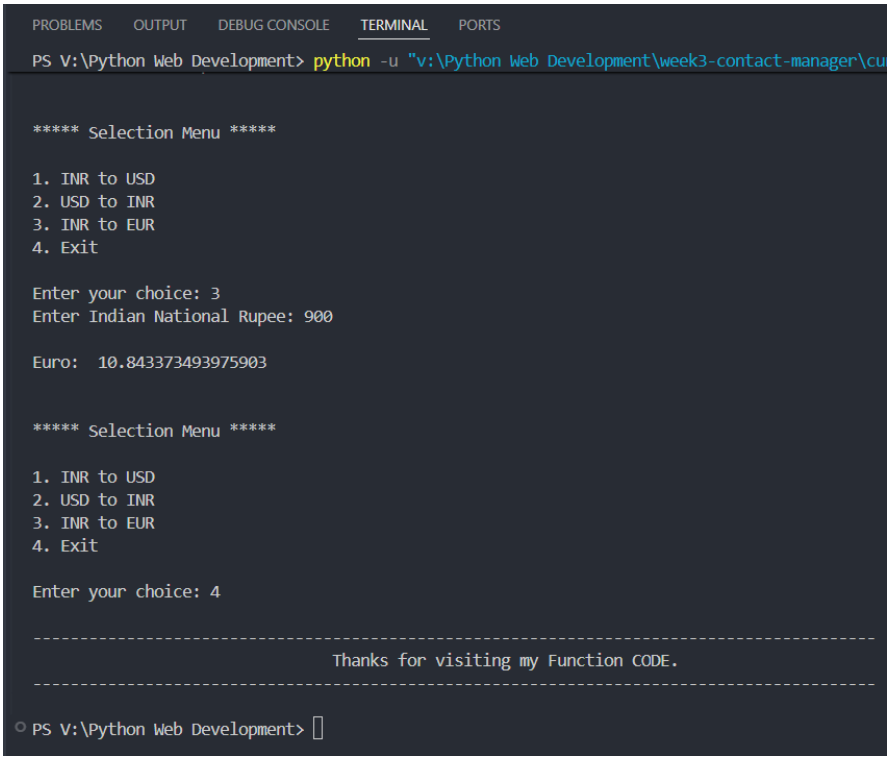
2. **Build a currency converter with multiple conversion functions.**

CODE:

```
# welcome message
print()
print("*" *90)
print("\t\t\tTo Build a currency converter System")
print("*" *90,"\n")
while True:
print()
print("***** Selection Menu *****","\n")
print("1. INR to USD ")
print("2. USD to INR")
print("3. INR to EUR")
print("4. Exit")
print()
ch=int(input("Enter your choice: "))
if(ch == 1):
def inr_to_usd(inr):
return inr / 83
inr=float(input("Enter Indian National Rupee: "))
print("\nUnited States Dollar: ",inr_to_usd(inr),"\n")

elif(ch == 2):
def usd_to_inr(usd):
return usd * 83
usd=float(input("Enter United States Dollar: "))
print("\nIndian National Rupee: ",usd_to_inr(usd),"\n")
elif(ch == 3):
def inr_to_eur(inr):
return inr / 90
inr=float(input("Enter Indian National Rupee: "))
print("\nEuro: ",inr_to_usd(inr),"\n")
elif(ch == 4):
break
else:
print("invalid choice.. please try again.")
# good bye message
print()
print("-"*90)
print("\t\t\t\tThanks for visiting my Function CODE.")
print("-"*90,"\n")
```

OUTPUT:


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\curre
To Build a currency converter System
***** Selection Menu *****
1. INR to USD
2. USD to INR
3. INR to EUR
4. Exit
Enter your choice: 1
Enter Indian National Rupee: 830
United States Dollar: 10.0
***** Selection Menu *****
1. INR to USD
2. USD to INR
3. INR to EUR
4. Exit
Enter your choice: 2
Enter United States Dollar: 10
Indian National Rupee: 830.0


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\cu
***** Selection Menu *****
1. INR to USD
2. USD to INR
3. INR to EUR
4. Exit
Enter your choice: 3
Enter Indian National Rupee: 900
Euro: 10.843373493975903
***** Selection Menu *****
1. INR to USD
2. USD to INR
3. INR to EUR
4. Exit
Enter your choice: 4
Thanks for visiting my Function CODE.
PS V:\Python Web Development>

3. **Create a student database using dictionaries.**

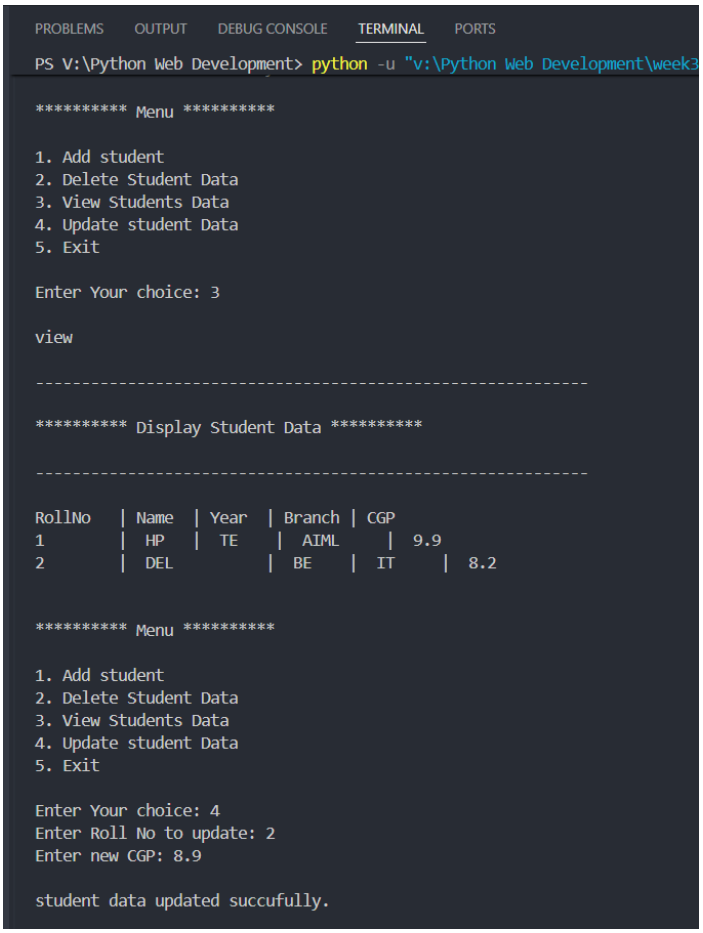
CODE:

```
# welcome message
print()
print("*" *90)
print("\t\t\t\tStudent Database Dictionaries")
print("*" *90,"\n")
students ={}
while True:
print("********** Menu **********\n")
print("1. Add student")
print("2. Delete Student Data")
print("3. View Students Data")
print("4. Update student Data")
print("5. Exit\n")
ch = int(input("Enter Your choice: "))
# add students
if(ch == 1):
rollno = int(input("Enter Roll NO (should be start from 1): "))
name = input("Enter Student Name: ")
year = input("Enter Your Year(FE,SE,TE,BE): ")
branch = input("Enter Branch Name: ")
cgp = float(input("Enter Your CGPA: "))
students [rollno]={
"name" : name,
"year":year,
"branch":branch,
"cgp": cgp}
print("\nStudent addeded succufully.\n")
# delete students
elif(ch == 2):
rollno=int(input("Enter Roll No to delete: "))
print("\ndelete\n")
if(rollno in students):
del students[rollno]
print("\nstudent data deleted succufully.\n")
else:
print("\nstudent not found.\n")

# view students
elif(ch == 3):
print("\nview\n")
if(not students):
print("\n No students in database.\n")
```

```
else:
print("-"*60)
print("\n********** Display Student Data **********\n")
print("-"*60)
print()
print("RollNo\t | Name\t | Year\t | Branch | CGP ")
for rollno, info in students.items():
print(rollno,"\t | ",info["name"],"\t | ",info["year"],"   | ",info["branch"],"    | ",info["cgp"])
print("\n")
# update students
elif(ch == 4):
rollno=int(input("Enter Roll No to update: "))
if(rollno in students):
students[rollno]["cgp"]= float(input("Enter new CGP: "))
print("\nstudent data updated succufully.\n")
else:
print("student not found.")
elif(ch == 5):
break
else:
print("Invalid choice please try again..!")
# good bye message
print()
print("-"*90)
print("\t\t\tThanks for visiting my Function CODE.")
print("-"*90,"\n")
```

OUTPUT:


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\stu
Student Database Dictionaries
********** Menu **********
1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit
Enter Your choice: 1
Enter Roll NO (should be start from 1): 1
Enter Student Name: HP
Enter Your Year(FE,SE,TE,BE): TE
Enter Branch Name: AIML
Enter Your CGPA: 9.9
Student addeded succufully.
********** Menu **********
1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit
Enter Your choice: 1
Enter Roll NO (should be start from 1): 2
Enter Student Name: DEL
Enter Your Year(FE,SE,TE,BE): BE
Enter Branch Name: IT
Enter Your CGPA: 8.2
Student addeded succufully.


PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS V:\Python Web Development> python -u "v:\Python Web Development\week3
********** Menu **********
1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit
Enter Your choice: 3
view

********** Display Student Data **********

RollNo | Name | Year | Branch | CGP
1 | HP | TE | AIML | 9.9
2 | DEL | BE | IT | 8.2
********** Menu **********
1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit
Enter Your choice: 4
Enter Roll No to update: 2
Enter new CGP: 8.9
student data updated succufully.

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contac

********** Menu **********

1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit

Enter Your choice: 3

view

------------------------------------------------------------

********** Display Student Data **********

------------------------------------------------------------

RollNo   | Name  | Year  | Branch | CGP
1        |  HP   |  TE   |  AIML     |  9.9
2        |  DEL          |  BE   |  IT     |  8.9


********** Menu **********

1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit

Enter Your choice: 2
Enter Roll No to delete: 2

delete


student data deleted succufully.
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\stude
student data deleted succufully.

********** Menu **********

1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit

Enter Your choice: 3

view

------------------------------------------------------------

********** Display Student Data **********

------------------------------------------------------------

RollNo   | Name  | Year  | Branch | CGP
1        |  HP   |  TE   |  AIML     |  9.9


********** Menu **********

1. Add student
2. Delete Student Data
3. View Students Data
4. Update student Data
5. Exit

Enter Your choice: 5

------------------------------------------------------------------------------------------
                        Thanks for visiting my Function CODE.
------------------------------------------------------------------------------------------
```

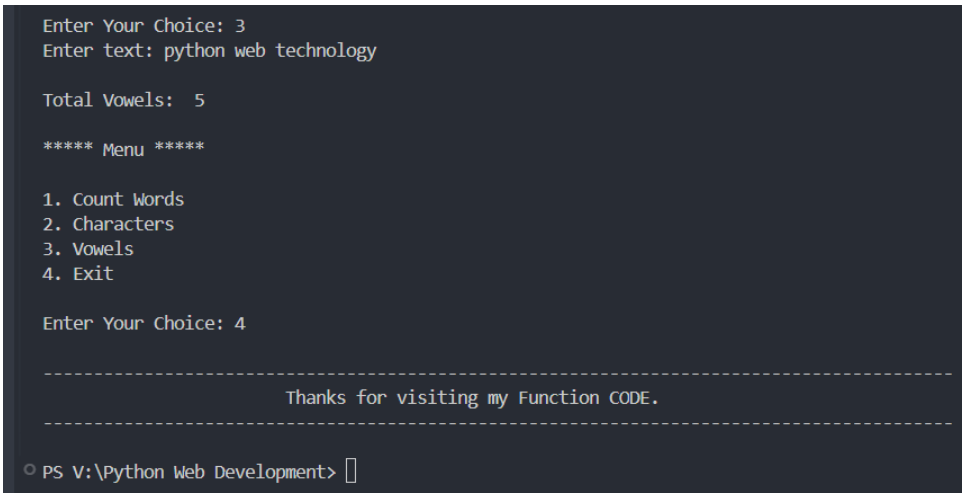
4. **Make a text analyzer that counts words, characters, and vowels.**

CODE:

```
# welcome message
print()
print("*" *90)
print("\t\t\t\tText Analyzer System")
print("*" *90,"\n")
while True:
print("***** Menu *****\n")
print("1. Count Words")
print("2. Characters")
print("3. Vowels")
print("4. Exit\n")
def is_text():
text=input("Enter text: ")
return text
ch=int(input("Enter Your Choice: "))
if(ch == 1):
text = is_text()
print("\nTotal Words: ",len(text.split()),"\n")

elif(ch == 2):
text = is_text()
print("\nTotal Characters: ",len(text),"\n")

elif(ch == 3):
text=is_text()
vowel_count=0
for ch in text.lower():
if(ch in "aeiou"):
vowel_count +=1
print("\nTotal Vowels: ",vowel_count,"\n")
elif(ch == 4):
break

else:
print("Invalid choice.. try again.")

# good bye message
print()
print("-"*90)
print("\t\t\tThanks for visiting my Function CODE.")
print("-"*90,"\n")
```

OUTPUT:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\te

********************************************************************************
                          Text Analyzer System
********************************************************************************

***** Menu *****

1. Count Words
2. Characters
3. Vowels
4. Exit

Enter Your Choice: 1
Enter text: python web technology

Total Words:  3

***** Menu *****

1. Count Words
2. Characters
3. Vowels
4. Exit

Enter Your Choice: 2
Enter text: python web technology

Total Characters:  21

***** Menu *****

1. Count Words
2. Characters
3. Vowels
4. Exit

Enter Your Choice: 3
Enter text: python web technology

Total Vowels:  5
```



```
Enter Your Choice: 3
Enter text: python web technology

Total Vowels:  5

***** Menu *****

1. Count Words
2. Characters
3. Vowels
4. Exit

Enter Your Choice: 4

--------------------------------------------------------------------------------
                      Thanks for visiting my Function CODE.
--------------------------------------------------------------------------------

PS V:\Python Web Development>
```

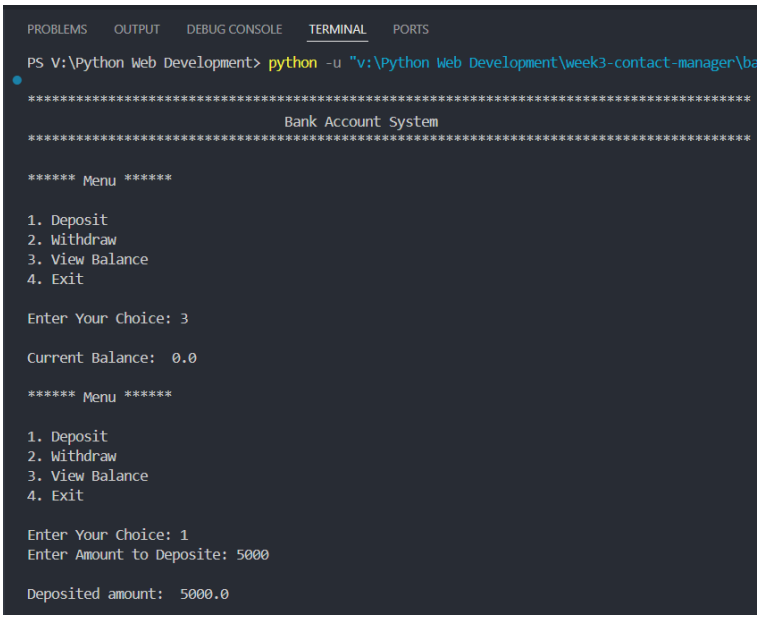
5. **Build a simple bank account system with deposit/withdraw functions.**

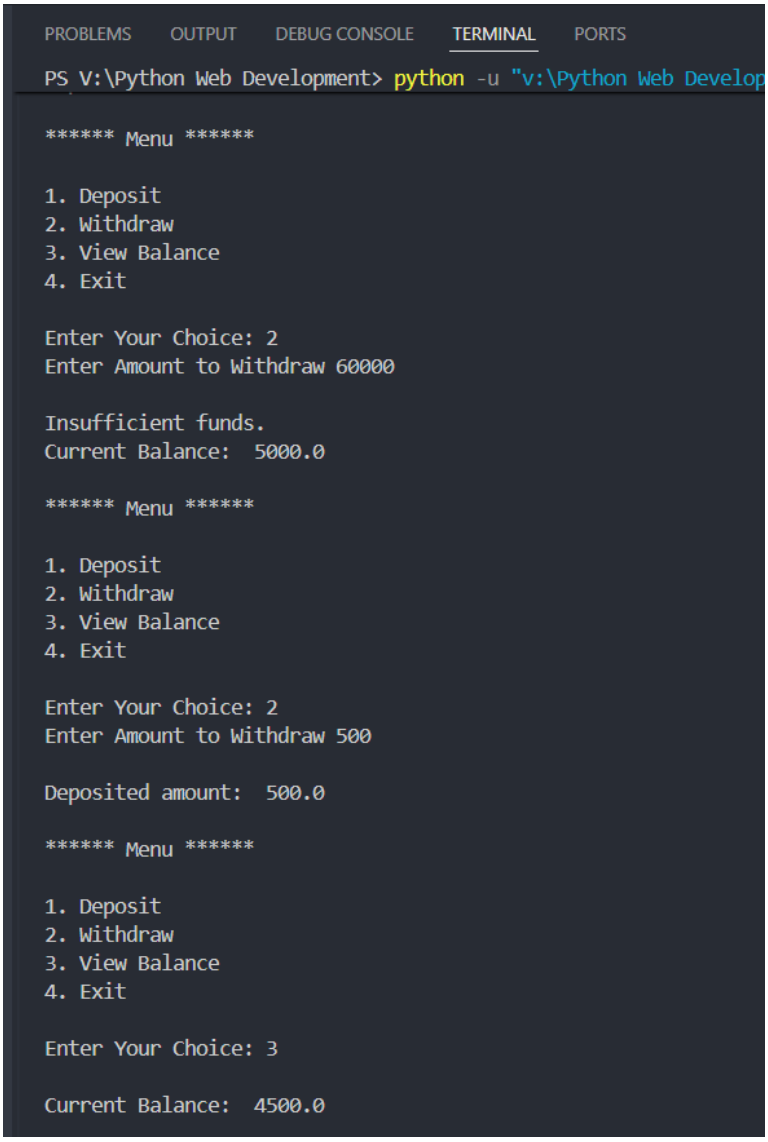
CODE:

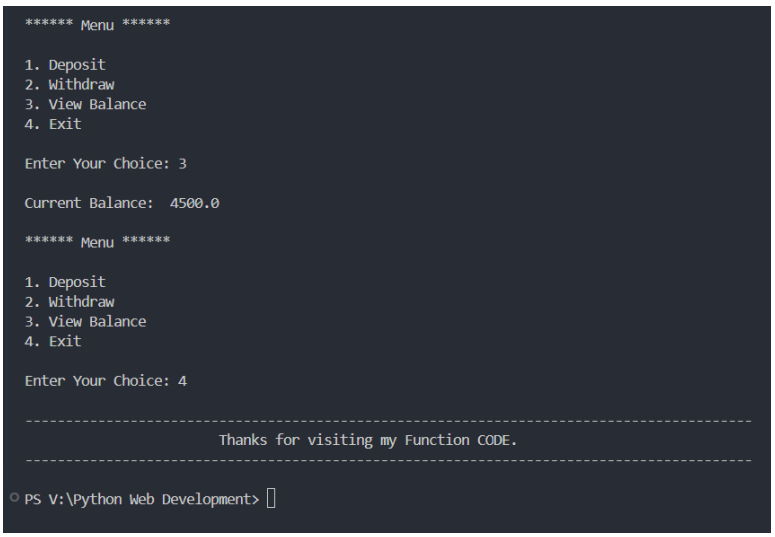
```
class BackAccount:
def __init__(self, balance: float = 0.0) ->None:
self.balance = balance
def to_deposite(self, amount: float) -> None:
if(amount > 0):
# deposite amount
self.balance += amount
print("\nDeposited amount: ",amount,"\n")
else:
print("\nDeposite amount must be positive.\n")
def to_withdraw(self, amount: float) -> None:
if(amount > 0):
# withdraw amount
if (self.balance >= amount):
self.balance -= amount
print("\nDeposited amount: ",amount,"\n")
else:
print("\nInsufficient funds.","\nCurrent Balance: ",self.balance,"\n")
else:
print("\nWithdraw amount must be positive.\n")
def to_view_balance(self) ->None:
print("\nCurrent Balance: ",self.balance,"\n")
# welcome message
print()
print("*" *90)
print("\t\t\t\tBank Account System")
print("*" *90,"\n")
def main() -> None:
account = BackAccount()
while True:
print("****** Menu ******\n")
print("1. Deposit")
print("2. Withdraw")
print("3. View Balance")
print("4. Exit\n")
ch=int(input("Enter Your Choice: "))
if(ch == 1):
try:
amount=float(input("Enter Amount to Deposite: "))
account.to_deposite(amount)
except ValueError:
print("\nInvalid input.. please enter valid number to deposite amount.\n")
```

```
elif(ch == 2):
try:
amount=float(input("Enter Amount to Withdraw "))
account.to_withdraw(amount)
except ValueError:
print("\nInvalid input.. please enter valid number to deposite amount.\n")
elif(ch == 3):
account.to_view_balance()
elif(ch == 4):
break
else:
print("\nInvalid Choice.. please try again.\n")
# good bye message
print()
print("-"*90)
print("\t\t\tThanks for visiting my Function CODE.")
print("-"*90,"\n")
if __name__ == "__main__":
main()
```

OUTPUT:




PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS V:\Python Web Development> python -u "v:\Python Web Develop
****** Menu ******
1. Deposit
2. Withdraw
3. View Balance
4. Exit
Enter Your Choice: 2
Enter Amount to Withdraw 60000
Insufficient funds.
Current Balance: 5000.0
****** Menu ******
1. Deposit
2. Withdraw
3. View Balance
4. Exit
Enter Your Choice: 2
Enter Amount to Withdraw 500
Deposited amount: 500.0
****** Menu ******
1. Deposit
2. Withdraw
3. View Balance
4. Exit
Enter Your Choice: 3
Current Balance: 4500.0


****** Menu ******
1. Deposit
2. Withdraw
3. View Balance
4. Exit
Enter Your Choice: 3
Current Balance: 4500.0
****** Menu ******
1. Deposit
2. Withdraw
3. View Balance
4. Exit
Enter Your Choice: 4
Thanks for visiting my Function CODE.
PS V:\Python Web Development>

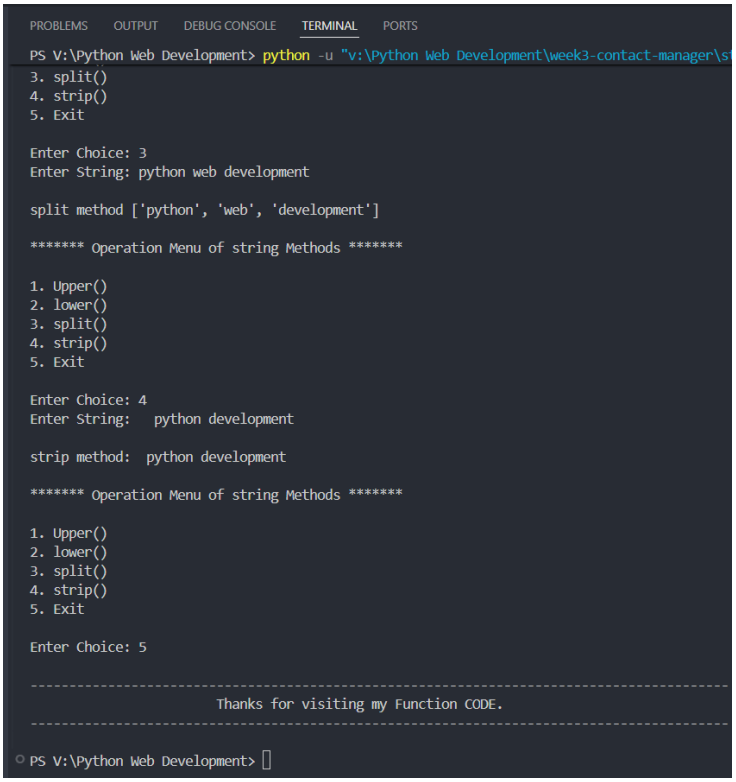
6. **Practice string methods like upper(), lower(), split(), strip().**

CODE:

```
# welcome message
print()
print("*" *90)
print("\t\t\t\tString Methods Example")
print("*" *90,"\n")
while True:
print("******* Operation Menu of string Methods *******\n")
print("1. Upper()")
print("2. lower()")
print("3. split()")
print("4. strip()")
print("5. Exit","\n")
ch=int(input("Enter Choice: "))
def is_string():
str=input("Enter String: ")
return str
if(ch == 1):
str=is_string()
print("\nupper method: ",str.upper(),"\n")

elif(ch == 2):
str=is_string()
print("\nlower method: ",str.lower(),"\n")

elif(ch == 3):
str=is_string()
print("\nsplit method",str.split(),"\n")

elif(ch == 4):
str=is_string()
print("\nstrip method: ",str.strip(),"\n")

elif(ch == 5):
break
else:
print("Invalid choice.. please try again.")
# good bye message
print()
print("-"*90)
print("\t\t\tThanks for visiting my Function CODE.")
print("-"*90,"\n")
```

OUTPUT:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\st

********************************************************************************
                              String Methods Example
********************************************************************************

******* Operation Menu of string Methods *******

1. Upper()
2. lower()
3. split()
4. strip()
5. Exit

Enter Choice: 1
Enter String: pallavi

upper method:  PALLAVI

******* Operation Menu of string Methods *******

1. Upper()
2. lower()
3. split()
4. strip()
5. Exit

Enter Choice: 2
Enter String: PALLAVI

lower method:  pallavi

******* Operation Menu of string Methods *******

1. Upper()
2. lower()
3. split()
4. strip()
5. Exit
```



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS V:\Python Web Development> python -u "v:\Python Web Development\week3-contact-manager\st
3. split()
4. strip()
5. Exit

Enter Choice: 3
Enter String: python web development

split method ['python', 'web', 'development']

******* Operation Menu of string Methods *******

1. Upper()
2. lower()
3. split()
4. strip()
5. Exit

Enter Choice: 4
Enter String:   python development

strip method:  python development

******* Operation Menu of string Methods *******

1. Upper()
2. lower()
3. split()
4. strip()
5. Exit

Enter Choice: 5

--------------------------------------------------------------------------------
                        Thanks for visiting my Function CODE.
--------------------------------------------------------------------------------

PS V:\Python Web Development>
```

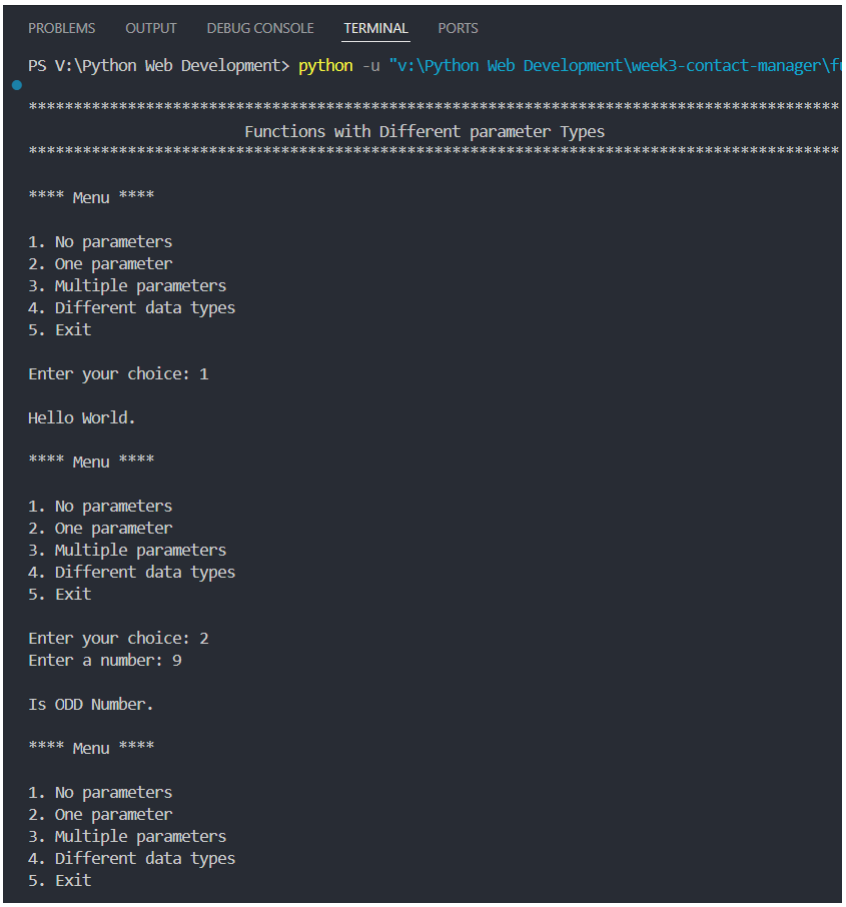
7. **Create functions with different parameter types.**

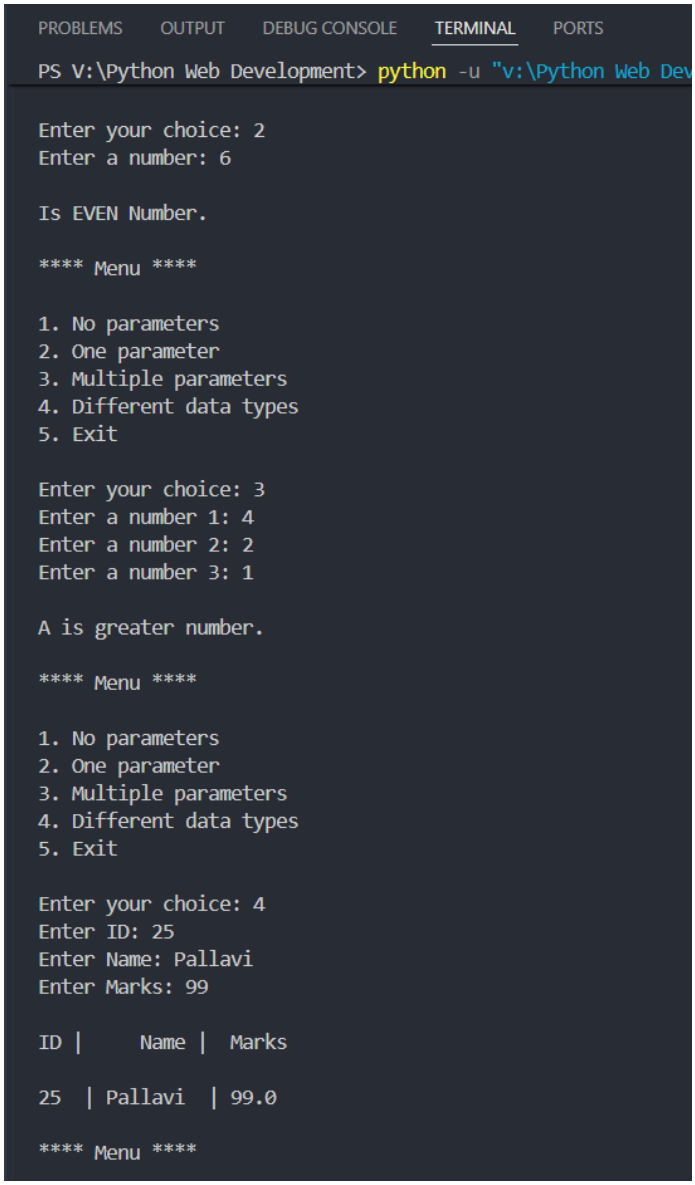
CODE:

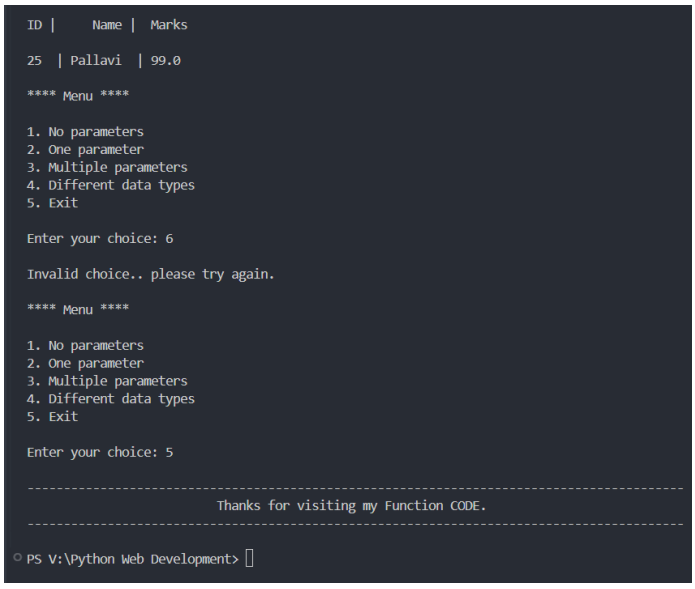
```
# welcome message
print()
print("*" *90)
print("\t\t\tFunctions with Different parameter Types")
print("*" *90,"\n")
while True:
print("**** Menu ****\n")
print("1. No parameters")
print("2. One parameter")
print("3. Multiple parameters")
print("4. Different data types")
print("5. Exit\n")
ch=int(input("Enter your choice: "))
if(ch == 1):
def hello_world():
print("\nHello World. \n")
hello_world()
elif(ch == 2):
def is_even_odd(number):
if(number %2 == 0):
print("\nIs EVEN Number.\n")
else:
print("\nIs ODD Number.\n")
number=int(input("Enter a number: "))
is_even_odd(number)
elif(ch == 3):
def is_greatr_not(a, b, c):
if(a > b and a > c):
print("\nA is greater number.\n")
elif(b > a and b > c):
print("\nB is greater number.\n")
else:
print("\nC is greater number.\n")
a=int(input("Enter a number 1: "))
b=int(input("Enter a number 2: "))
c=int(input("Enter a number 3: "))
is_greatr_not(a, b, c)
elif(ch == 4):
def diff_datatype(id,name,marks):
print("\nID |\t Name |\t Marks \n")
print(id," |",name," |",marks,"\n")
id=int(input("Enter ID: "))
```

```
name=input("Enter Name: ")
marks=float(input("Enter Marks: "))
diff_datatype(id,name,marks)
elif(ch == 5):
break
else:
print("\nInvalid choice.. please try again.\n")
# good bye message
print()
print("-"*90)
print("\t\t\t  Thanks for visiting my Function CODE.")
print("-"*90,"\n")
```

OUTPUT:




PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS V:\Python Web Development> python -u "v:\Python Web Dev
Enter your choice: 2
Enter a number: 6
Is EVEN Number.
**** Menu ****
1. No parameters
2. One parameter
3. Multiple parameters
4. Different data types
5. Exit
Enter your choice: 3
Enter a number 1: 4
Enter a number 2: 2
Enter a number 3: 1
A is greater number.
**** Menu ****
1. No parameters
2. One parameter
3. Multiple parameters
4. Different data types
5. Exit
Enter your choice: 4
Enter ID: 25
Enter Name: Pallavi
Enter Marks: 99
ID | Name | Marks
25 | Pallavi | 99.0
**** Menu ****


ID | Name | Marks
25 | Pallavi | 99.0
**** Menu ****
1. No parameters
2. One parameter
3. Multiple parameters
4. Different data types
5. Exit
Enter your choice: 6
Invalid choice.. please try again.
**** Menu ****
1. No parameters
2. One parameter
3. Multiple parameters
4. Different data types
5. Exit
Enter your choice: 5
Thanks for visiting my Function CODE.
PS V:\Python Web Development>