



## PYTHON MINI PROJECTS

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### 1. Grading System

```
n=float(input('Enter your percentage : ')) if
```

```
n>100 or n<0:
```

```
    print('Invalid input from user.')
```

```
elif n>85:
```

```
    print('GRADE:A+')
```

```
elif n>=65 or n<=85:
```

```
    print('GRADE:A')
```

```
elif n>=45 or n<65:
```

```
    print('GRADE:B')
```

```

elif n>=25 or n<45:
    print('GRADE:C')
else:

```

```

    print('GRADE:D')

```

Output:

```

==== RESTART: C:\Users\De11\AppData
Enter your percentage : 87
GRADE:A+

==== RESTART: C:\Users\De11\AppData
Enter your percentage : 100
GRADE:A+

==== RESTART: C:\Users\De11\AppData
Enter your percentage : 101
Invalid input from user.

```

2. Print ng Numbers: # Print ng according to user ch=input('Press F for forward print ng or Press B for backward print ng : ') if ch=='F':

```

    st=int(input('Enter start ng point : '))    end=int(input('Enter ending
point : '))    upd=int(input('Enter upda on : '))    ch1=input('Press R
for row print ng or Press C for column print ng:')

```

```

    if ch1=='R':        if st<=end:
        for i in range(st,end+1,upd):

```

```

            print(i,end=' ')

```

```

else:

```

```

    print('Invalid start ng and ending point.')

```

```

elif ch1=='C':        if st<=end:        for i in
range(st,end+1,upd):

```

```

        print(i)

```

```

else:

```

```

        print('Invalid starting and ending point.')
    else:

        print('Invalid choice.')
    elif ch=='B':

        st=int(input('Enter starting point : '))    end=int(input('Enter ending
point : '))    upd=int(input('Enter updation : '))    ch2=input('Press R
for row printing or Press C for column printing:')

        if ch2=='R':            if st>=end:
for i in range(st,end-1,-upd):

            print(i,end=' ')
        else:

            print('Invalid input(s).')
        elif ch2=='C':            if st>=end:
for i in range(st,end-1,-upd):

            print(i)
        else:

            print('Invalid
input(s).')    else:
        print('Invalid choice')

    else:
        print('Enter either F or B. Thank you.')

```

Output:

```

= RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python312\test.py
Press F for forward printing or Press B for backward printing : F
Enter starting point : 5
Enter ending point : 20
Enter updation : 2
Press R for row printing or Press C for column printing:R
5 7 9 11 13 15 17 19
|

```



### 3.Vo ng Age System

#### #VOTING SYSTEM

```
age=int(input('Enter age of the voter : '))
```

```
if age>=18 and age<=100:
```

```
    print('Welcome, you are eligible for vo ng.')
```

```
ask=int(input('Enter Aadhar number to con nue : '))
```

```
    print('Press : 1 for BJP ; 2 for INC ; 3 for AAP ; 4 for BSP ; 5 for RJD')
```

```
    ch=input('Enter your decision : ')
```

```
    ch=int(ch)    if ch==1:
```

```
print('You voted for BJP.Thank you.')    elif
```

```
ch==2:
```

```
    print('You voted for INC.Thank you.')
```

```
elif ch==3:
```

```
    print('You voted for AAP.Thank
```

```
you.')
```

 elif ch==4:

```
    print('You voted for BSP.Thank you.')
```

```
elif ch==5:
```

```
    print('You voted for RJD.Thank you.')
```

```
    else:
```

```
        print('Invalid Choice.')
```

```
else: print('YOU CANNOT
```

```
VOTE.')
```

Output:

```

==== RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python312\test
Enter age of the voter : 17
YOU CANNOT VOTE.

==== RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python312\test
Enter age of the voter : 19
Welcome, you are eligible for voting.
Enter Aadhar number to continue : 25458796
Press : 1 for BJP ; 2 for INC ; 3 for AAP ; 4 for BSP ; 5 for RJD
Enter your decision : 3
You voted for AAP.Thank you.

```

#### 4. Inventory

# inventory dictionary

inventory = { }

def addproduct(item, quantity):

    if item in inventory:

        inventory[item] += quantity

    else:

        inventory[item] = quantity

def removeproduct(item, quantity):

    if item in inventory:

        if inventory[item] >= quantity:

inventory[item] -= quantity

if inventory[item] == 0:

del inventory[item]

    else:        print(f"Not enough {item}

in stock.") else:

        print(f"{item} not found in inventory.")

def totalitems():

```

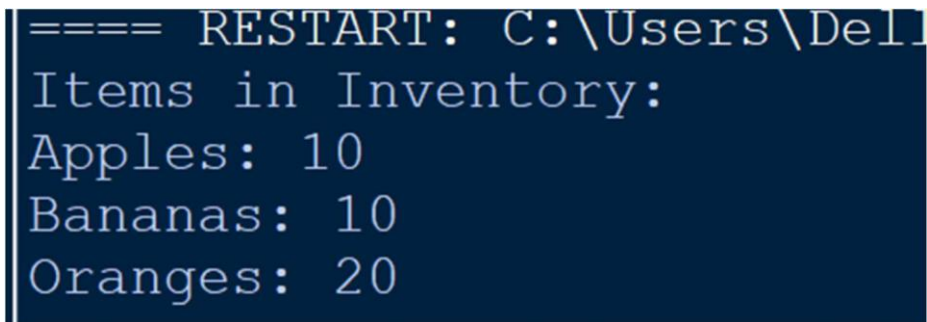
print("Items in Inventory:")
for item, quan ty in inventory.items():

    print(f"{item}: {quan ty}")

addproduct("Apples", 10)
addproduct("Bananas", 15)
addproduct("Oranges", 20)
removeproduct("Bananas", 5)

```

totalitems() Output:



```

==== RESTART: C:\Users\De...
Items in Inventory:
Apples: 10
Bananas: 10
Oranges: 20

```

## 5. Vowel Coun ng

```

s=input()
count=0

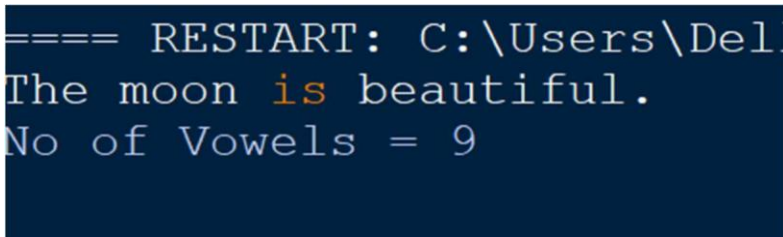
s=s.lower() a=s.strip() for x in a:    if x=='a' or
x=='e' or x=='i' or x=='o' or x=='u':

    count+=1

print('No of Vowels = %d'%(count))

```

Output:



```

==== RESTART: C:\Users\De...
The moon is beautiful.
No of Vowels = 9

```

```

6. Guess a number import random def guessing_num():
    num = random.randint(1, 100)    a empts = 0

    print("Welcome to the Number Guessing Game!")

    print("Computer has chosen a number. Can you guess it?")

    while True:

        guess = int(input("Enter your guess:
"))    a empts += 1    if guess < num:

            print("Too low.Try again.")
        elif guess > num:

            print("Too high.Try again.")
        else:

            print("Congratula ons! You've guessed the number %d in %d
a empts!"%(num,a empts))

            break

    guessing_num()

```

Output:

```

= RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python312\test.p
Welcome to the Number Guessing Game!
Computer has chosen a number. Can you guess it?
Enter your guess: 41
Too high.Try again.
Enter your guess: 40
Too high.Try again.
Enter your guess: 30
Too high.Try again.
Enter your guess: 20
Too high.Try again.
Enter your guess: 10
Congratulations! You've guessed the number 10 in 5 attempts!

```

7. Rock Paper Scissors

```
import random
```



```

def get_user_choice():
    while True:

        user_choice = input("Enter your choice (rock, paper, scissors):
").lower()    if user_choice in ['rock', 'paper', 'scissors']:

            return user_choice

        else:

            print("Invalid choice. Please enter rock, paper, or scissors.")

def get_computer_choice():

    return random.choice(['rock', 'paper', 'scissors'])

def determine_winner(user_choice, computer_choice):

    if user_choice == computer_choice:

        return "It's a tie!"    elif (user_choice == 'rock' and
computer_choice == 'scissors') or \

        (user_choice == 'paper' and computer_choice == 'rock') or \

        (user_choice == 'scissors' and computer_choice == 'paper'):

        return "You win!"

    else:

        return "Computer wins!"

def play_game():

    user_choice = get_user_choice()    computer_choice =
get_computer_choice()    print("You chose:", user_choice)
print("Computer chose:", computer_choice)
print(determine_winner(user_choice, computer_choice))

```

play\_game()

Output:

```
= RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python38-64\python.exe
Enter your choice (rock, paper, scissors): r
You chose: rock
Computer chose: rock
It's a tie!

==== RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python38-64\python.exe
Enter your choice (rock, paper, scissors): p
You chose: paper
Computer chose: rock
You win!
```

## 8. Dice Roller

```
import random
```

```
def roll_a_dice():    return
```

```
random.randint(1, 6) result =
```

```
roll_a_dice() print("You
```

```
rolled a", result) Output:
```

```
= RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python38-64\python.exe
You rolled a 5

>

==== RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python38-64\python.exe
You rolled a 4

>
```

## 9. Calculator

```
# Simple calculator
```

```

def add(x, y):
    return x + y
def subtract(x, y):
    return x - y

def mul_ply(x, y):
    return x * y
def divide(x, y):
    if y == 0:
        return "Error"
    else:
        return x / y

print("Choose operation : ")
print("1. Add")
print("2. Subtract")
print("3. Multiply")
print("4. Divide")

while True:

    ch = input("Enter choice(1/2/3/4): ")

    if ch in ('1', '2', '3', '4'):

        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))

        if ch == '1':
            print(f"The result is {add(num1, num2)}")

        elif ch == '2':
            print(f"The result is {subtract(num1, num2)}")

        elif ch == '3':
            print(f"The result is {mul_ply(num1, num2)}")

        elif ch == '4':

```

```
print(f"The result is {divide(num1, num2)}")
```

```
nex = input(" Next calcula on ? (yes/no): ")
```

```
if nex!= 'yes':
```

```
    break
```

```
else:
```

```
    print("Invalid Input")
```

Output:

```
==== RESTART: C:\Users\Dell\AppData\Local\Microsoft\Windows\PowerShell\PowerShell.exe
Choose operation :
1. Add
2. Subtract
3. Multiply
4. Divide
Enter choice(1/2/3/4):
Invalid Input
Enter choice(1/2/3/4): 4
Enter first number: 20
Enter second number: 5
The result is 4.0
Next calculation ? (yes/no): no
|
```