PYTHON MINI PROJECTS

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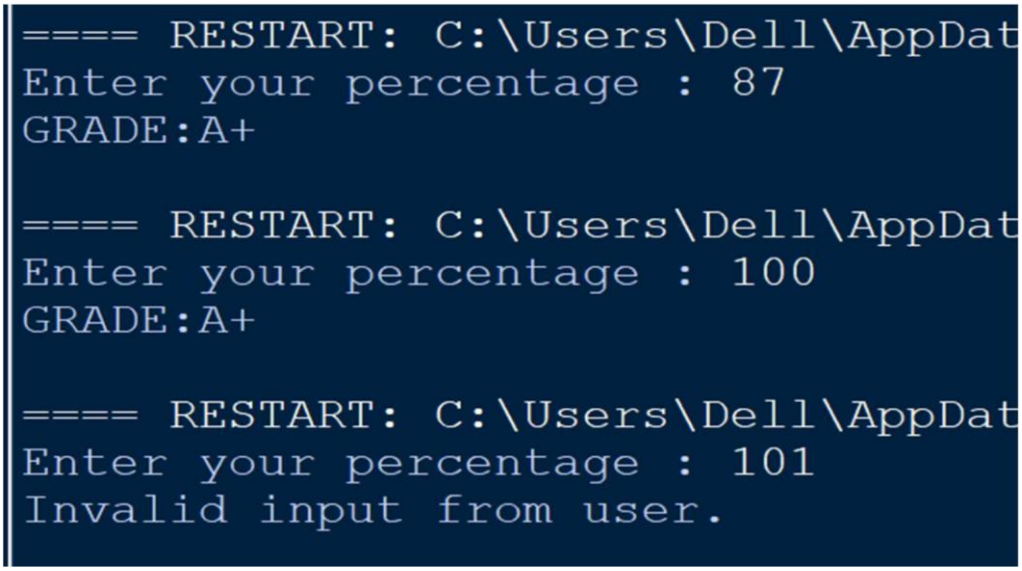
1. Grading System

```
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:

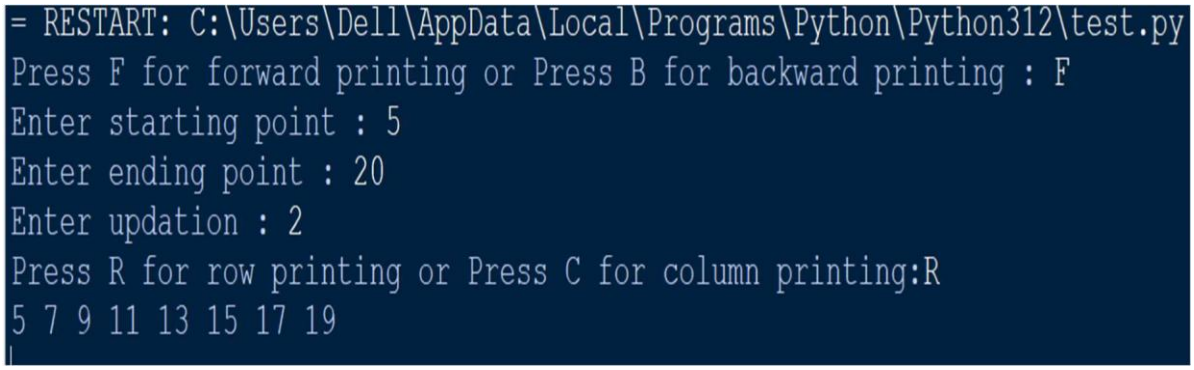


2.Prin ng Numbers: # Prin ng according to user ch=input('Press F for forward prin ng or Press B for backward prin ng : ') if ch=='F':

```
   st=int(input('Enter star ng point : '))     end=int(input('Enter ending
point : '))     upd=int(input('Enter upda on : '))     ch1=input('Press R
for row prin ng or Press C for column prin ng:')
   if ch1=='R':               if st<=end:
for i in range(st,end+1,upd):
            print(i,end=' ')
else:
          print('Invalid star ng and ending point.')
elif ch1=='C':        if st<=end:            for i in
range(st,end+1,upd):
            print(i)
else:
```

```
            print('Invalid star ng and ending point.')
    else:

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

       st=int(input('Enter star ng point : '))     end=int(input('Enter ending
    point : '))     upd=int(input('Enter upda on : '))     ch2=input('Press R
    for row prin ng or Press C for column prin ng:')

       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:



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:

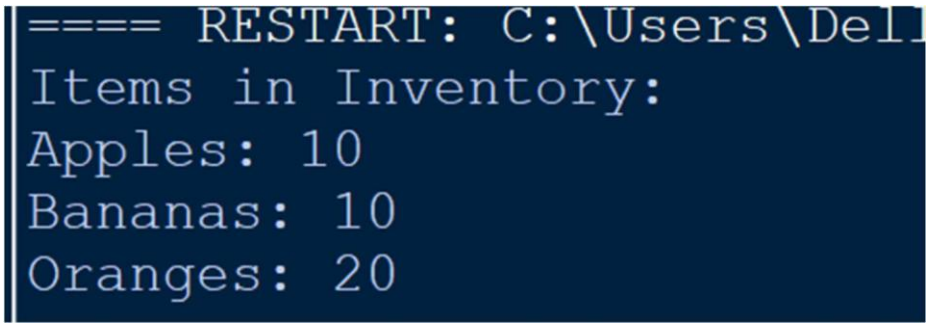
```
==== RESTART: C:\Users\Dell\AppData\Local\Programs\Python\Python312\test
Enter age of the voter : 17
YOU CANNOT VOTE.

==== 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 dic onary

inventory = {}

def addproduct(item,quan ty):

    if item in inventory:

      inventory[item] += quan ty

    else:

      inventory[item] = quan ty def

removeproduct(item, quan ty):

    if item in inventory:

      if inventory[item] >= quan ty:

inventory[item] -= quan ty

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)
```

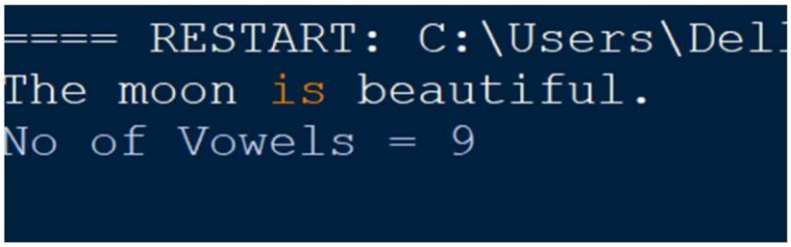
totalitems() Output:



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))
```

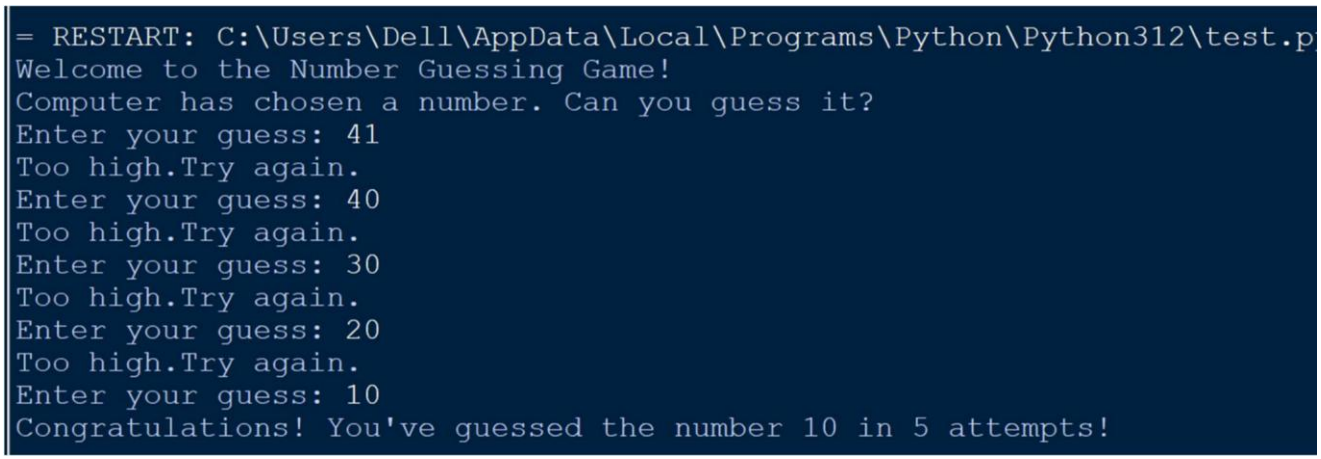
Output:



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:



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 e!"      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\Progr
Enter your choice (rock, paper, scissors): r
You chose: rock
Computer chose: rock
It's a tie!

==== RESTART: C:\Users\Dell\AppData\Local\Pr
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\
You rolled a 5
>

==== RESTART: C:\Users\De
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 opera on : ")
print("1.   Add")   print("2.
Subtract")   print("3.   Mul
ply")   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: