PYTHON MINI PROJECTS

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SECTION: BA

GROUP: 1

CLASS ROLL: 12

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1. #numbers in forward and reverse

```
n = int(input("Enter the number of elements: "))
l = []
for i in range(n):
    num = int(input(f"Enter number {i+1}: "))
    l.append(num)
print("Forward order: ", l)
print("Reverse order: ", l[::-1])
```

OUTPUT:-

```
Python 3.12.2 (tags/v3.12.2:6abddd9, Feb  6 2024, 21:26:36) [MSC v.1937 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

========== RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py ==========
Enter the number of elements: 6
Enter number 1: 1
Enter number 2: 2
Enter number 3: 3
Enter number 4: 4
Enter number 5: 5
Enter number 6: 7
Forward order:  [1, 2, 3, 4, 5, 7]
Reverse order:  [7, 5, 4, 3, 2, 1]
```

2. # program for voting

```
a=str(input("enter your name"))
b=int(input("enter your age"))
if(b>=18):
    print(a,"you are eligible for vote")
    print("1-BJP")
    print("2-CON")
    print("3-AAP")
    print("4-JANTA")
    n=int(input("enter a no. for vote"))
    BJP=0
    CON=0
    AAP=0
    JANTA=0
    if(n==1):
        BJP+=1
        print("you have voted for BJP")
    elif(n==2):
        CON+=1
        print("you have voted for CON")
    elif(n==3):
        AAP+=1
```

```
        print("you have voted for AAP")
    elif(n==4):
        JANTA+=1
        print("you have voted for JANTA")
    else:
        print("you have not entered the valid no.")
    print("BJP=",BJP)
    print("CON=",CON)
    print("AAP=",AAP)
    print("JANTA=",JANTA)
else:
    print("you are not eligible")
```

```
========== RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py ==========
enter your name anugrah
enter your age 19
 anugrah you are eligible for vote
1-BJP
2-CON
3-AAP
4-JANTA
enter a no. for vote 1
you have voted for BJP
BJP= 1
CON= 0
AAP= 0
JANTA= 0
```

OUTPUT:-

3. #guess the number

```
import random
def guess_number():
    secret_number = random.randint(1,100)

    attempts = 0
    while True:
        guess = int(input("Guess the number between 1 and 100 "))
        attempts += 1

        if guess < secret_number:
            print("Too Low! Try again 😞 ")
        elif guess > secret_number:
            print("Too High! Try again 😞 ")
        else:
            print(f"Congratulations! 🥳 🥳 You guessed the number {secret_number} correctly!")
            print(f"It took you {attempts} attempts.")
            break
guess_number()
```

OUTPUT:-

```
= RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py
Guess the number between 1 and 5 4
Too High! Try again😞
Guess the number between 1 and 5 3
Too High! Try again😞
Guess the number between 1 and 5 2
Too High! Try again😞
Guess the number between 1 and 5 1
Congratulations!😊😊 You guessed the number 1 correctly!
It took you 4 attempts.
```

4. #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 is 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():
    print("Welcome to Rock, Paper, Scissors")
    while True:
        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_again = input("Do you want to play again? (yes/no): ").lower()
        if play_again != 'yes':
            break
play_game()
```

OUTPUT:-

```
= RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py
Welcome to Rock, Paper, Scissors
Enter your choice (rock/paper/scissors): rock
You chose: rock
Computer chose: rock
It is a tie
Do you want to play again? (yes/no): yes
Enter your choice (rock/paper/scissors): paper
You chose: paper
Computer chose: scissors
Computer wins!
Do you want to play again? (yes/no): no
```

5. #basic calculator

```
def add(x, y):
    return x + y

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

def multiply(x, y):
    return x * y

def divide(x, y):
    if y == 0:
```

```
        return "Cannot divide by zero"
    else:
        return x / y

print("Select operation that you want to operate:")
print("1. Add")
print("2. Subtract")
print("3. Multiply")
print("4. Divide")

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

    if choice in ('1', '2', '3', '4'):
        num1 = float(input("Enter first number: "))
        num2 = float(input("Enter second number: "))

        if choice == '1':
            print("Result:", add(num1, num2))
        elif choice == '2':
            print("Result:", subtract(num1, num2))
        elif choice == '3':
```

```
        print("Result:", multiply(num1, num2))
    elif choice == '4':
        print("Result:", divide(num1, num2))
else:
    print("Invalid Input")

again = input("Do you want to perform another calculation? (yes/no):
")
if again.lower() != 'yes':
    break
```

OUTPUT:-

```
= RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py
Select operation that you want to operate:
1. Add
2. Subtract
3. Multiply
4. Divide
Enter choice (1/2/3/4): 2
Enter first number: 5
Enter second number: 3
Result: 2.0
Do you want to perform another calculation? (yes/no): yes
Enter choice (1/2/3/4): 3
Enter first number: 3
Enter second number: 4
Result: 12.0
Do you want to perform another calculation? (yes/no):
```

6. #grading system

```
def grade_calculating(score):
    if score >= 90:
        return 'A'
    elif score >= 80:
        return 'B'
    elif score >= 70:
        return 'C'
    elif score >= 60:
        return 'D'
    else:
        return 'F'


def main():
    try:
        score = float(input("Enter the percentage score: "))
        if score < 0 or score > 100:
            print("Invalid, Please enter a percentage between 0 and 100.")
        else:
            grade = grade_calculating(score)
            print("The grade for the score {:.2f}% is: {}".format(score, grade))
    except ValueError:
```

```
        print("Invalid input. Please enter a valid number.")
main()
```

OUTPUT:-

```
= RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py
Enter the percentage score: 78.9
The grade for the score 78.90% is: C
```

7. # roll a dice game

```
import random
def roll_a_dice():
    return random.randint(1, 6)

def roll_dice(num_rolls):
    results = []
    for i in range(num_rolls):
        result = roll_a_dice()
        results.append(result)
    return results
num_rolls = int(input("Enter the number of times you want to roll the dice: "))
results = roll_dice(num_rolls)
```

print("Results:", results)

OUTPUT:-

```
= RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py
Enter the number of times you want to roll the dice: 4
Results: [4, 5, 5, 5]
```

8. #inventory system

```
inventory = {}

def addproduct(item, quanty):
    if item in inventory:
        inventory[item] += quanty
    else:
        inventory[item] = quanty

def removeproduct(item, quanty):
    if item in inventory:
        if inventory[item] >= quanty:
            inventory[item] -= quanty
        elif 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, quanty in inventory.items():
        print(f"{item}: {quanty}")

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

removeproduct("Bananas", 5)
totalitems()
```

OUTPUT:-

```
= RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py
Items in Inventory:
Apples: 10
Bananas: 10
Oranges: 20
```

9. #report card

```
name=str(input("enter name of student:"))
roll_no=int(input("enter roll no. of student"))
clas=(input("enter class of student"))
print("Name:",name)
print("Roll:",roll_no)
print("Class:",clas)
if(name!=str and roll_no!=int(2)):
    print("please enter valid details")


else:
    maths=int(input("enter no. of maths between 0 to 100 "))
    physics=int(input("enter no. of physics between 0 to 100 "))
    biology=int(input("enter no. of biology between 0 to 100 "))
    chemistry=int(input("enter no. of chemistry between 0 to 100 "))
    if(maths<0 or maths>100 or physics<0 or physics>100 or biology<0 or
biology>100 or chemistry<0 or chemistry>100):
        print("please enter valid marks")
    else:
        total=maths+physics+biology+chemistry
        print("total marks:",total)
        percentage=total/4
```

```
print("percentage:",percentage)
if(percentage>=90):
    print("Grade: A")
elif(percentage>=80):
    print("Grade: B")
elif(percentage>=70):
    print("Grade: C")
elif(percentage>=35):
    print("Grade: D")
else:
    print("Grade: F")
```

OUTPUT:-

```
= RESTART: C:/Users/anugr/AppData/Local/Programs/Python/Python312/python23.py
enter name of student:anugrah
enter roll no. of student12
enter class of student10
Name: anugrah
Roll: 12
Class: 10
enter no. of maths between 0 to 100 78
enter no. of physics between 0 to 100 87
enter no. of biology between 0 to 100 75
enter no. of chemistry between 0 to 100 88
total marks: 328
percentage: 82.0
Grade: B
```