Introduction

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Topic: Mini Project

Subject: Python Programming

1.basic calculator

```
def result(a,b):
 if c=="+":
 print("sum=",a+b)
 if c=="-":
 print("substract=",a-b)
 if c=="*":
 print("multiplication=",a*b)
 if c=="%":
 print("modulas=",a%b)
 if c=="//":
 return a//b
 if c=="pow":
 return a**b
 if c=="/":
 return a/b
n1=int(input("enter first number "))
n2=int(input("enter second number "))
c=input("enter operator(+,-*,%,int(//),/,pow) ")
result(n1,n2)
```

2.grading system

```
def calculate_grade(score):
 if score>=90:
 return "O"
 elif score >= 80:
 return "A"
 elif score >= 70:
 return "B"
 elif score >= 60:
 return "C"
 elif score >= 50:
 return "D"
 elif score>=40:
 return "E"
 elif score<40:
 return "F"
 else:
 print("Invalid Input!!")
student_score =int(input("enter your marks : "))
grade = calculate_grade(student_score)
```

```
print("Grade:", grade)
```

3.voting system

```
print("Welcome to the Voting System ")
n=int(input("enter you age to check your eligibility: "))
if(n>=18):
 print("you can vote,here are the list of candidates whom you can vote:")
 print("(1) A")
 print("(2) B")
 print("(3) C")
 print("(4) D")
 a=int(input("Whom do you want to choose?:"))
 if(a==1):
 print("You chose A")
 print("Thanks for vote")
 elif(a==2):
 print("You chose B")
 print("Thanks for vote")
 elif(a==3):
```

```
 print("You chose C")
 print("Thanks for vote")
 elif(a==4):
 print("You chose D")
 print("Thanks for vote")
 else:print("invalid candidate")
elif(n<18):
 print("Sorry you can't vote")
else:
 print("invalid entry!")
```

4.number guessing game

```
import random
while True:
 user =int(input("enter any number (1-10): "))
 computer=random.randint(1,10)
 if user==computer:
 print("guess number is correct!")
 print("*Winner*")
 break
```

```
else:
 print("Try Again!!")
```

5.role the dice

```
from random import randint
print("welcome to the role dice")
print(randint(1,6))
```

6.rock paper scissor game

```
from random import randint #import random module and use randint funtion
uscore=0 #user score initially 0
cscore=0 #computer score initially 0
print("="*10 + "welcome to the rock paper and scissor game" +"="*10)
n=int(input("enter no.of rounds ")) # for how many round you want to play
for i in range(n):
 user=int(input("enter (1 for rock) (2 for paper) (3 for scissor) : "))
 computer=randint(1,3) #now computer generate the number
 if computer==1:
 print("computer select rock")
 elif computer==2:
```

```
 print("computer select paper")
 else:
 print("computer select scissor")
 if(user==computer): #conditions are given
 print("no score")
 elif ((user==1 and computer==2) or (user==2 and computer==3) or (user==3 and
computer==1)):
 print("computer won this round")
 cscore+=1
 elif((user==1 and computer==3) or (user==2 and computer==1 ) or (user==3 and
computer==2)) :
 print("user won this round")
 uscore+=1
 else:
 print("invalid input ")
 print("try again")
print("*"*5 + "score of the game" + "*"*5) # score board
print("|| user score" , uscore ," ||")
```

```
print("|| computer score" , cscore ," ||")
if uscore>cscore:
 print("|| user won the match ||")
elif uscore==cscore:
 print("|| match draw ||")
else:
 print("|| computer won the match ||" )
print("_"*12 + "*END*" + "_"*12)
```

7.inventary system

```
class Inventory:
    def _init_(self):
        self.inventory = {}

    def add_item(self, item_name, quantity):
        if item_name in self.inventory:
            self.inventory[item_name] += quantity
        else:
            self.inventory[item_name] = quantity

    def remove_item(self, item_name, quantity):
```

```
        if item_name in self.inventory:
            if self.inventory[item_name] >= quantity:
                self.inventory[item_name] -= quantity
                print(f"{quantity} {item_name}(s) removed from inventory.")
            else:
                print("Insufficient quantity in inventory.")
        else:
            print("Item not found in inventory.")

    def display_inventory(self):
        print("Inventory:")
        for item, quantity in self.inventory.items():
            print(f"{item}: {quantity}")



inventory_system = Inventory()
inventory_system.add_item("Apples", 10)
inventory_system.add_item("Bananas", 15)
inventory_system.add_item("Oranges", 20)
```

```
inventory_system.display_inventory()


inventory_system.remove_item("Apples", 5)
inventory_system.remove_item("Bananas", 20)
inventory_system.display_inventory()
```

8.number system

```
class NumberSystem:
    def _init_(self, number):
        self.number = number

    def forward(self):
        return self.number

    def backward(self):
        return self.number[::-1]

    def horizontal(self):
        horizontal_display = ""
        for digit in self.number:
```

```
            horizontal_display += digit + " "
        return horizontal_display.strip()

    def vertical(self):
        vertical_display = ""
        for digit in self.number:
            vertical_display += digit + "\n"
        return vertical_display.strip()
```

9.report generator

```
class ReportGenerator:
    def _init_(self, report_name):
        self.report_name = report_name
        self.report_data = []

    def add_data(self, data):
        self.report_data.append(data)

    def generate_report(self):
        report_content = "\n".join(self.report_data)
```

```
    return report_content


def save_report_to_file(self):
    report_content = self.generate_report()
    with open(f"{self.report_name}.txt", "w") as file:
        file.write(report_content)
    print(f"Report '{self.report_name}.txt' saved successfully.")
```