Introduction

Name: Aakriti Yadav

Course: B-Tech (C.S.E)

Section: BA-1

University Roll No: 2315000008

Topic: Mini Project

Subject: Python Programming

Index

1. Basic Calculator
2. Grading System
3. Inventory Management System
4. Number Guessing Game
5. Number System
6. Report (By File Handling)
7. Rock Paper Scissor
8. Roll the dice
9. Voting System

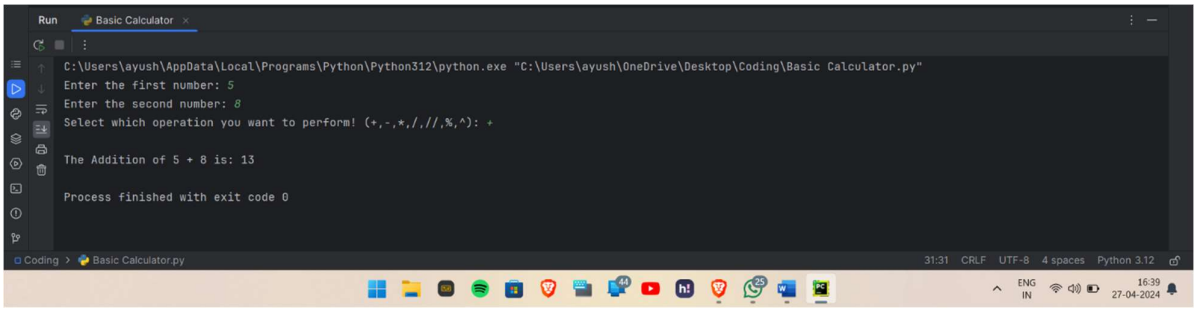
1. Basic Calculator

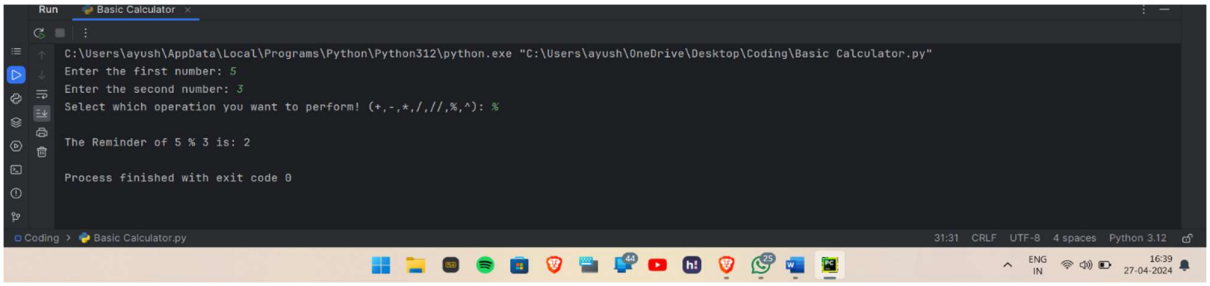
Code:

```
a=int(input("Enter the first number: "))

b=int(input("Enter the second number: "))

choice=input("Select which operation you want to perform! (+,-,*,/,//,%,^): ")

if choice=="+":
   print("\nThe Addition of", a,"+",b,"is:",a+b)

elif choice=="-":
   print("\nThe Subtraction of",a,"-",b,"is:",a-b)

elif choice=="*":
   print("\nThe Multiplication of",a,"*",b,"is:",a*b)

elif choice=="/":
   print("\nThe Division of",a,"/",b,"is:",a/b)

elif choice=="//":
   print("\nThe Division(Round off) of",a,"//",b,"is:",a//b)

elif choice=="%":
   print("\nThe Reminder of",a,"%",b,"is:",a%b)

elif choice=="^":
```

```
    print("\nThe Exponential of",a,"^",b,"is:",a**b,"\n")

else:
    print("Invalid Character")
```

Output



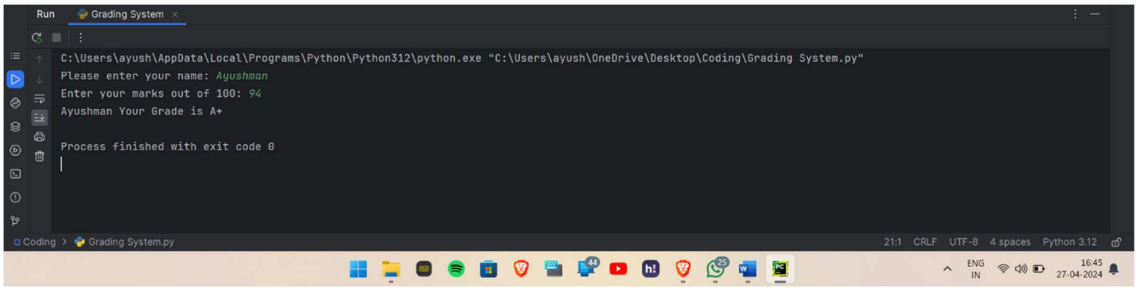


2. Grading System

Code:

```
n=input("Please enter your name: ")
g=int(input("Enter your marks out of 100: "))
if g>90 and g<=100:
   print(f"{n} Your Grade is A+")
elif g>80 and g<=90:
   print(f"{n} Your Grade is A")
elif g>70 and g<=80:
   print(f"{n} Your Grade is B+")
elif g>60 and g<=70:
   print(f"{n} Your Grade is B")
elif g>50 and g<=60:
   print(f"{n} Your Grade is C+")
elif g>=40 and g<=50:
   print(f"{n} Your Grade is C")
elif g<40:
   print(f"{n} Your Grade is F , Fail")
elif g>100 or g<0:
   print("!Invalid Input!"):
```

Output



3. *Inventory Management System*

Code:

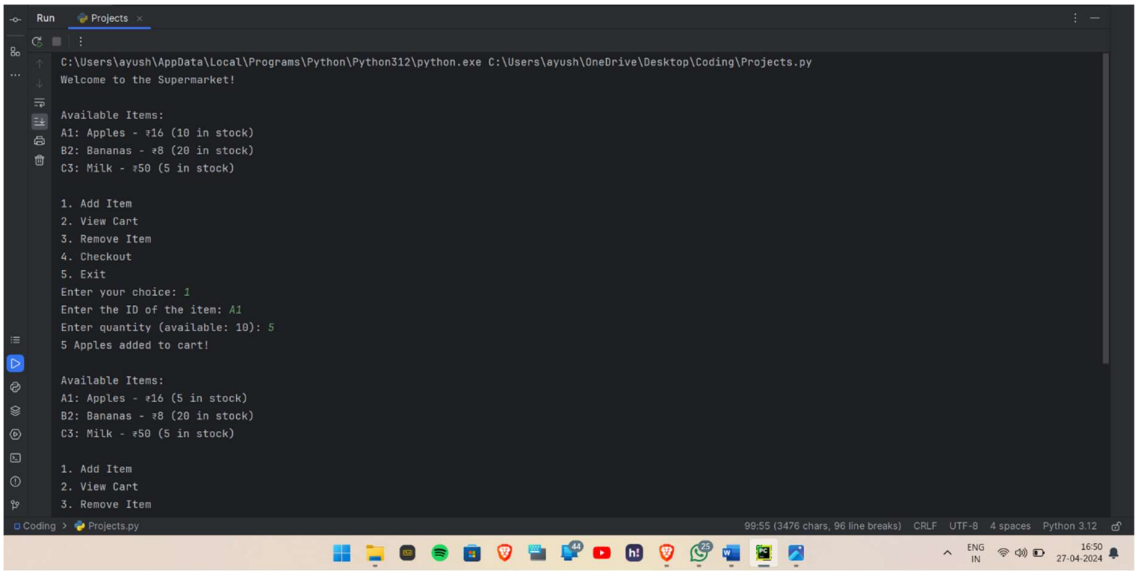
```
inventory = {
    "A1": {"name": "Apples", "price": 16, "quantity": 10},
    "B2": {"name": "Bananas", "price": 8, "quantity": 20},
    "C3": {"name": "Milk", "price": 50, "quantity": 5},
}

cart = {}
total_amount = 0

print("Welcome to the Supermarket!")

while True:
    print("\nAvailable Items:")
```

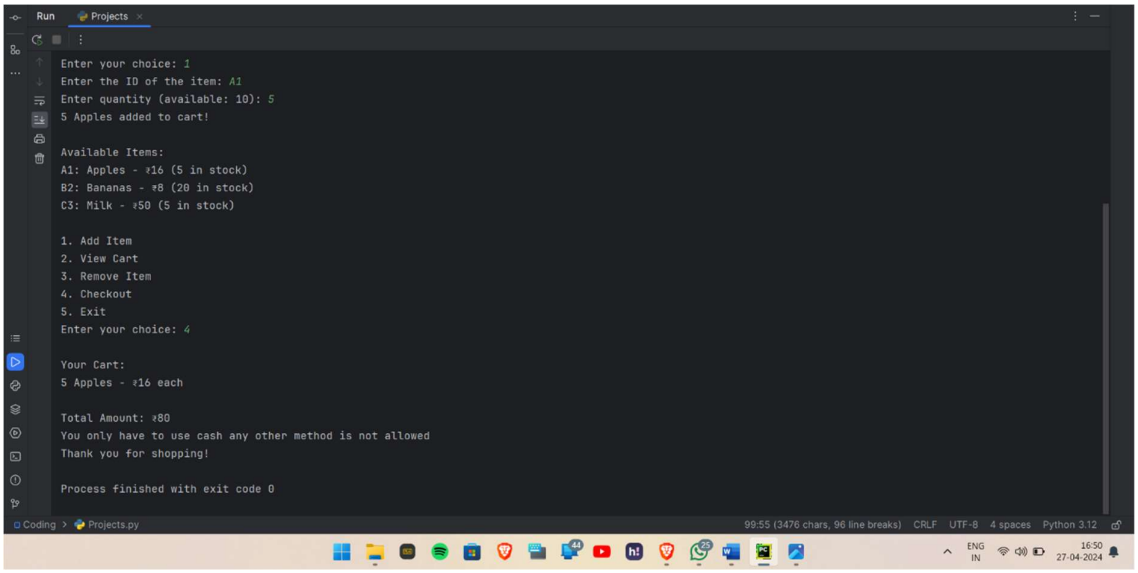
```
for id, details in inventory.items():
    print(f"{id}: {details['name']} - ₹{details['price']} ({details['quantity']} in stock)")

print("\n1. Add Item")
print("2. View Cart")
print("3. Remove Item")
print("4. Checkout")
print("5. Exit")

choice = input("Enter your choice: ")

if choice in ['1', '3']:

    id = input("Enter the ID of the item: ")

    if id in inventory:

        if choice == '1':
            quantity_available = inventory[id]["quantity"]
            quantity = int(input(f"Enter quantity (available: {quantity_available}): "))

            if quantity <= quantity_available:
                inventory[id]["quantity"] -= quantity
                cart[id] = cart.get(id, 0) + quantity
                total_amount += quantity * inventory[id]["price"]
                print(f"{quantity} {inventory[id]['name']} added to cart!")

            else:
                print(f"Insufficient quantity of {inventory[id]['name']} available.")
```

```
        else:

            if id in cart:
                quantity_in_cart = cart[id]
                quantity = int(input(f"Enter quantity to remove (in your cart: {quantity_in_cart}): "))

                if quantity <= quantity_in_cart:
                    inventory[id]["quantity"] += quantity
                    cart[id] -= quantity
                    total_amount -= quantity * inventory[id]["price"]
                    if cart[id] == 0:
                        del cart[id]
                    print(f"{quantity} {inventory[id]['name']} removed from cart.")

                else:
                    print(f"Insufficient quantity of {inventory[id]['name']} in your cart.")

            else:
                print(f"Item with ID '{id}' not found in your cart.")

    elif choice == '2':

        if not cart:
            print("Your cart is empty.")

        else:
            print("\nYour Cart:")
            for id, quantity in cart.items():
                details = inventory[id]
                print(f"{quantity} {details['name']} - ₹{details['price']} each")
            print(f"\nTotal Amount: ₹{total_amount}")
```

```
elif choice == '4':

    if not cart:
        print("Your cart is empty. Please add items before checkout.")

    else:
        print("\nYour Cart:")
        for id, quantity in cart.items():
            details = inventory[id]
            print(f"{quantity} {details['name']} - ₹{details['price']} each")
        print(f"\nTotal Amount: ₹{total_amount}")
        print("You only have to use cash any other method is not allowed")
        print("Thank you for shopping!")
        break

elif choice == '5':
    print("Thank you for visiting!")
    break

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

Output


Run
Projects
C:\Users\ayush\AppData\Local\Programs\Python\Python312\python.exe C:\Users\ayush\OneDrive\Desktop\Coding\Projects.py
Welcome to the Supermarket!
Available Items:
A1: Apples - ₹16 (10 in stock)
B2: Bananas - ₹8 (20 in stock)
C3: Milk - ₹50 (5 in stock)
1. Add Item
2. View Cart
3. Remove Item
4. Checkout
5. Exit
Enter your choice: 1
Enter the ID of the item: A1
Enter quantity (available: 10): 5
5 Apples added to cart!
Available Items:
A1: Apples - ₹16 (5 in stock)
B2: Bananas - ₹8 (20 in stock)
C3: Milk - ₹50 (5 in stock)
1. Add Item
2. View Cart
3. Remove Item
Coding > Projects.py
99:55 (3476 chars, 96 line breaks) CRLF UTF-8 4 spaces Python 3.12
ENG IN
16:50 27-04-2024


Run
Projects
Enter your choice: 1
Enter the ID of the item: A1
Enter quantity (available: 10): 5
5 Apples added to cart!
Available Items:
A1: Apples - ₹16 (5 in stock)
B2: Bananas - ₹8 (20 in stock)
C3: Milk - ₹50 (5 in stock)
1. Add Item
2. View Cart
3. Remove Item
4. Checkout
5. Exit
Enter your choice: 4
Your Cart:
5 Apples - ₹16 each
Total Amount: ₹80
You only have to use cash any other method is not allowed
Thank you for shopping!
Process finished with exit code 0
Coding > Projects.py
99:55 (3476 chars, 96 line breaks) CRLF UTF-8 4 spaces Python 3.12
ENG IN
16:50 27-04-2024

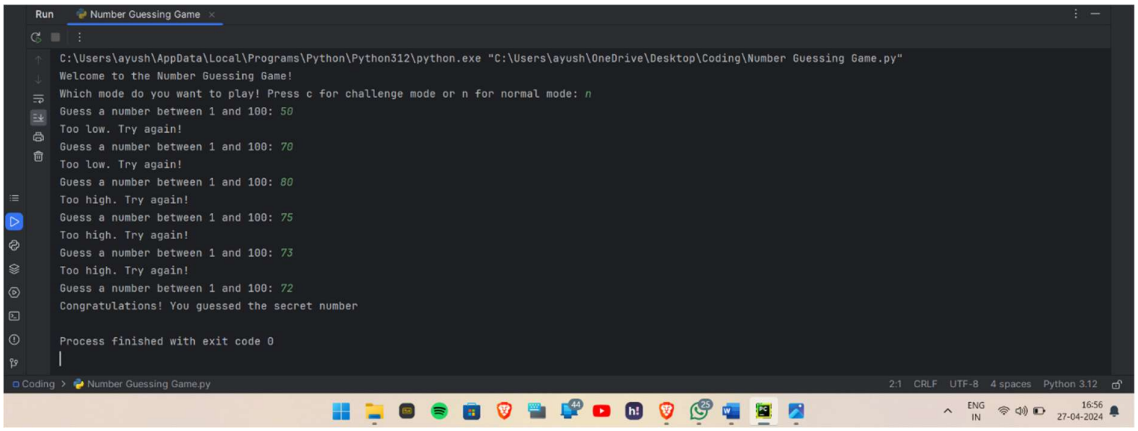
4. Number Guessing Game

Code:

```
import random

def number_guessing_game():
    lowest = 1
    highest = 100
    secret_number = random.randint(lowest, highest)
    attempts = 0


    print("Welcome to the Number Guessing Game!")
    choice=input("Which mode do you want to play! Press c for challenge mode or n for normal mode: ").lower()


    if choice=="c":
        while True:
            guess = int(input(f"Guess a number between {lowest} and {highest}: "))
            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 secret number {secret_number} in {attempts} attempts.")
                break
```

```
        if attempts == 10:
            print(f"Sorry, you ran out of attempts! The secret number is {secret_number}.")
            break
    elif choice=="n":

        while True:
        guess = int(input(f"Guess a number between {lowest} and {highest}: "))

        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 secret number")
            break

number_guessing_game()
```

Output



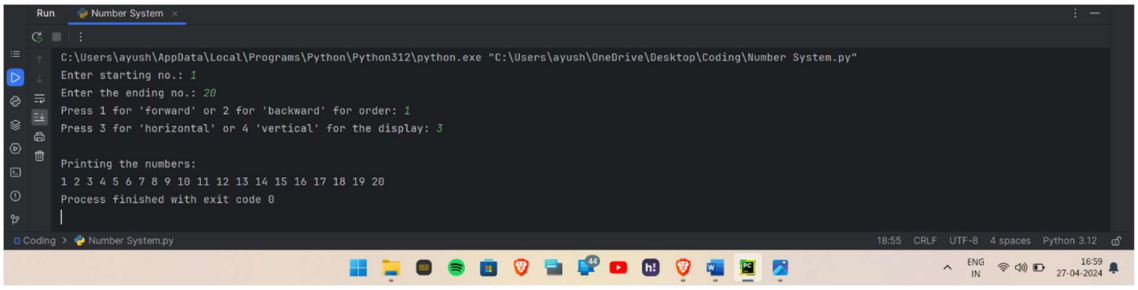
5. Number System

Code:

```
start = int(input("Enter starting no.: "))
end = int(input("Enter the ending no.: "))

if start > end:
    start, end = end, start
order = input("Press 1 for 'forward' or 2 for 'backward' for order: ")
display = input("Press 3 for 'horizontal' or 4 'vertical' for the display: ")
```

```
print("\nPrinting the numbers:")


if order == '1':
  for num in range(start, end + 1):
     print(num, end=' ' if display == '3' else '\n')
else:
  for num in range(end, start - 1, -1):
     print(num, end=' ' if display == '3' else '\n')
```

Output



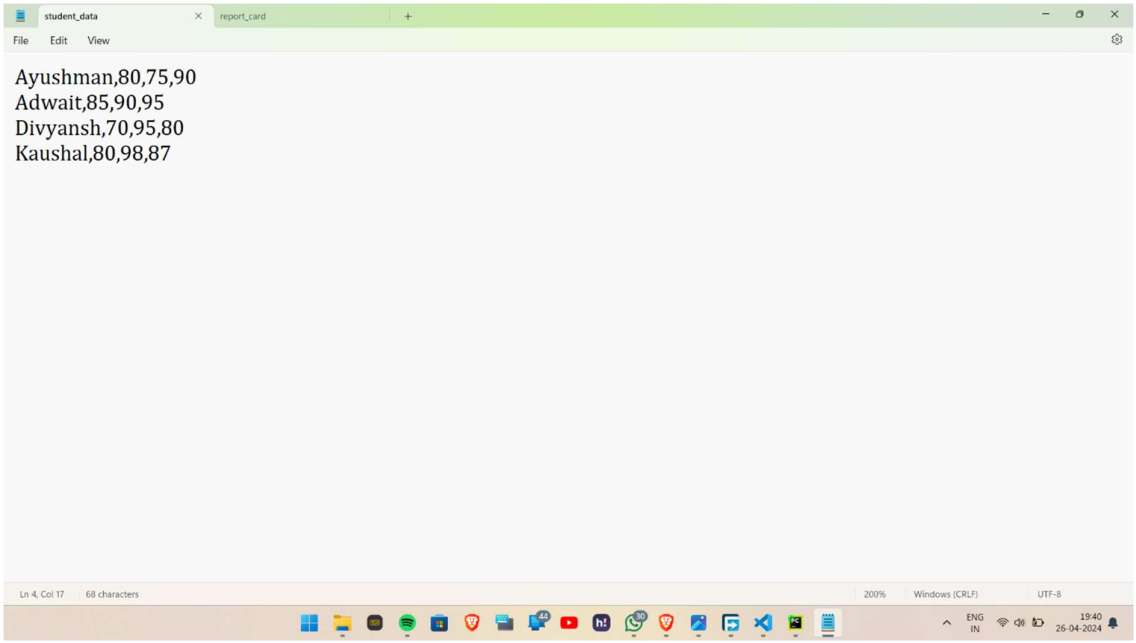
6. Reporting (By File Handling)

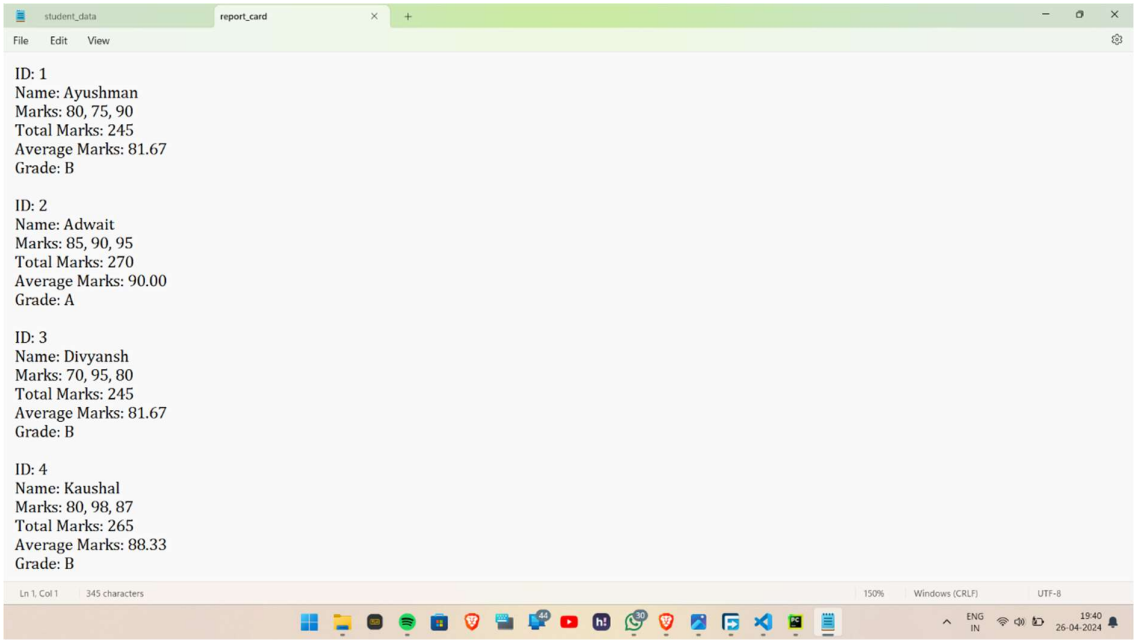
Code:

```
input_file_path = "C:\\Users\\ayush\\OneDrive\\Documents\\student_data.txt"
output_file_path = "C:\\Users\\ayush\\OneDrive\\Documents\\report_card.txt"

with open("C:\\Users\\ayush\\OneDrive\\Documents\\student_data.txt", 'r') as file:
    lines = file.readlines()

report_card = ""
for idx, line in enumerate(lines):
    data = line.strip().split(',')
    student_id = idx + 1
    name = data[0]
    marks = list(map(int, data[1:]))
    total_marks = sum(marks)
    average_marks = total_marks / len(marks)

    if average_marks >= 90:
        grade = 'A'
    elif average_marks >= 80:
        grade = 'B'
    elif average_marks >= 70:
        grade = 'C'
    elif average_marks >= 60:
        grade = 'D'
    else:
```

```
    grade = 'F'

  report_card += f"ID: {student_id}\nName: {name}\nMarks: {', '.join(map(str, marks))}\nTotal Marks: {total_marks}\nAverage Marks: {average_marks:.2f}\nGrade: {grade}\n\n"

with open("C:\\Users\\ayush\\OneDrive\\Documents\\report_card.txt", 'w') as file:
  file.write(report_card)
```

Output





7. Rock Paper Scissor Game

Code:

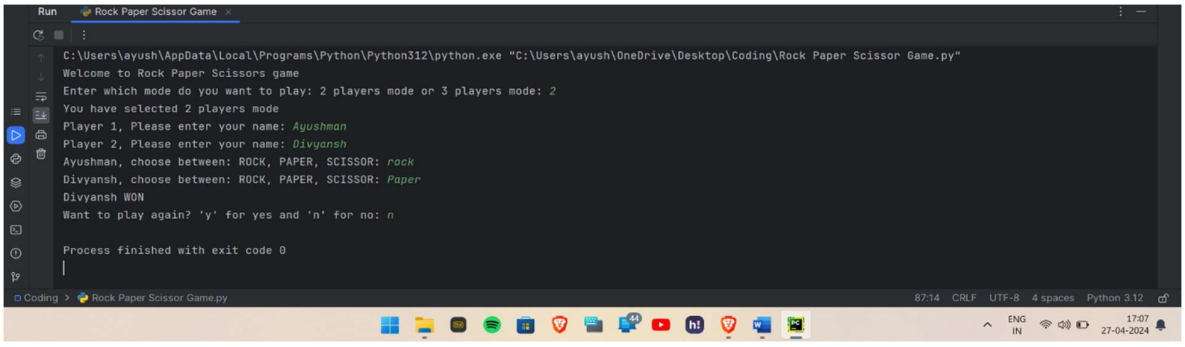
```
print("Welcome to Rock Paper Scissors game")
mode = int(input("Enter which mode do you want to play: 2 players mode or 3 players mode: "))

while True:
  if mode == 2:
    print("You have selected 2 players mode")
```

```
    p1 = input("Player 1, Please enter your name: ")
    p2 = input("Player 2, Please enter your name: ")

    while True:
      c1 = input(f"{p1}, choose between: ROCK, PAPER, SCISSOR: ").upper()
      if c1 not in ["ROCK", "PAPER", "SCISSOR"]:
        print("INVALID INPUT")
        continue
      else:
        break

    while True:
      c2 = input(f"{p2}, choose between: ROCK, PAPER, SCISSOR: ").upper()
      if c2 not in ["ROCK", "PAPER", "SCISSOR"]:
        print("INVALID INPUT")
        continue
      else:
        break

    if c1 == c2:
      print("It's a Tie. TRY AGAIN")
    elif (c1 == "ROCK" and c2 == "SCISSOR") or (c1 == "PAPER" and c2 == "ROCK") or (c1 ==
"SCISSOR" and c2 == "PAPER"):
      print(f"{p1} WON")
    else:
      print(f"{p2} WON")

  elif mode == 3:
    print("You have selected 3 players mode")
    p1 = input("Player 1, Please enter your name: ")
    p2 = input("Player 2, Please enter your name: ")
```

```
    p3 = input("Player 3, Please enter your name: ")


    while True:
        c1 = input(f"{p1}, choose between: ROCK, PAPER, SCISSOR: ").upper()
        if c1 not in ["ROCK", "PAPER", "SCISSOR"]:
            print("INVALID INPUT")
            continue
        else:
            break


    while True:
        c2 = input(f"{p2}, choose between: ROCK, PAPER, SCISSOR: ").upper()
        if c2 not in ["ROCK", "PAPER", "SCISSOR"]:
            print("INVALID INPUT")
            continue
        else:
            break


    while True:
        c3 = input(f"{p3}, choose between: ROCK, PAPER, SCISSOR: ").upper()
        if c3 not in ["ROCK", "PAPER", "SCISSOR"]:
            print("INVALID INPUT")
            continue
        else:
            break


    if c1 == c2 == c3:
        print("It's a Tie. TRY AGAIN")
    elif (c1 == "ROCK" and c2 == "SCISSOR" and c3 == "SCISSOR") or (c1 == "PAPER" and c2 == "ROCK" and c3 == "ROCK") or (c1 == "SCISSOR" and c2 == "PAPER" and c3 == "PAPER"):
        print("It's a Tie. TRY AGAIN")
```

```
    elif (c1 == "ROCK" and c2 == "SCISSOR" and c3 == "PAPER") or (c1 == "PAPER" and c2 == "ROCK" and c3 == "SCISSOR") or (c1 == "SCISSOR" and c2 == "PAPER" and c3 == "ROCK"):
        print(f"{p1} WON")
    elif (c1 == "ROCK" and c2 == "PAPER" and c3 == "SCISSOR") or (c1 == "PAPER" and c2 == "SCISSOR" and c3 == "ROCK") or (c1 == "SCISSOR" and c2 == "ROCK" and c3 == "PAPER"):
        print(f"{p2} WON")
    else:
        print(f"{p3} WON")


  else:
    print("INVALID CHOICE, Choose again")
    mode = int(input("Enter which mode do you want to play: 2 players mode or 3 players mode: "))


  ask = input("Want to play again? 'y' for yes and 'n' for no: ").lower()
  if ask == "y":
    continue
  elif ask == "n":
    break
  else:
    print("Invalid choice. Exiting game.")
    break
```

Output



8. Roll the Dice

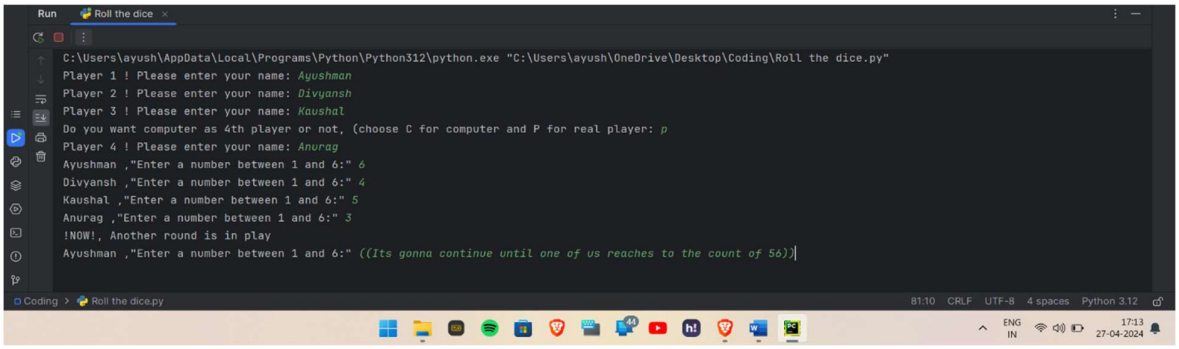
Code:

```
import random
while True:
  s1 = 0
  s2 = 0
  s3 = 0
  s4 = 0
  # 56 steps
  p1=input("Player 1 ! Please enter your name: ")
  p2 = input("Player 2 ! Please enter your name: ")
  p3 = input("Player 3 ! Please enter your name: ")
  while True:
    choose=input("Do you want computer as 4th player or not, (choose C for computer and P for real player: ").upper()

    if choose == "P":
      p4 = input("Player 4 ! Please enter your name: ")
    elif choose=="C":
      print("Now! Computer is playing with you all as Player 4")
    else:
      print("!INVALID CHOICE! Choose Again")
      continue
    break
  while True:
    while True:
```

```
        n1 = int(input(f"{p1} ,\"Enter a number between 1 and 6:\" "))
        if n1 < 1 or n1 > 6:
            print(f"!Error! {p1} ,\"Please enter a number between 1 and 6 not lower than 1 and not greater than 6\"")
            continue
        else:
            s1+=n1
            break
    while True:
        n2 = int(input(f"{p2} ,\"Enter a number between 1 and 6:\" "))
        if n2 < 1 or n2 > 6:
            print(f"!Error! {p2},\"Please enter a number between 1 and 6 not lower than 1 and not greater than 6\"")
            continue
        else:
            s2 += n2
            break
    while True:
        n3 = int(input(f"{p3} ,\"Enter a number between 1 and 6:\" "))
        if n3 < 1 or n3 > 6:
            print(f"!Error! {p3},\"Please enter a number between 1 and 6 not lower than 1 and not greater than 6\"")
            continue
        else:
            s3+=n3
            break
    while True:
        if choose=="P":
            n4 = int(input(f"{p4} ,\"Enter a number between 1 and 6:\" "))
            if n4 < 1 or n4 > 6:
                print("!Error!Please enter a number between 1 and 6 not lower than 1 and not greater than 6")
```

```
            continue
          else:
            s4 += n4
            break
        else:
          c=random.randint(0,6)
          s4 += c
          break
    if s1>=56 and s2!=56 and s3!=56 and s4!=56:
      print(f"{p1}, WON the game")
      break
    elif s1!=56 and s2>=56 and s3!=56 and s4!=56:
      print(f"{p2}, WON the game")
      break
    elif s1!=56 and s2==56 and s3>=56 and s4!=56:
      print(f"{p3}, WON the game")
      break
    elif s1!=56 and s2!=56 and s3!=56 and s4>=56:
      if choose=="P":
        print(f"{p4}, WON the game")
        break
      else:
        print("Computer , WON the game")
        break
    else:
      print("!NOW!, Another round is in play")
      continue
  break
```

Output



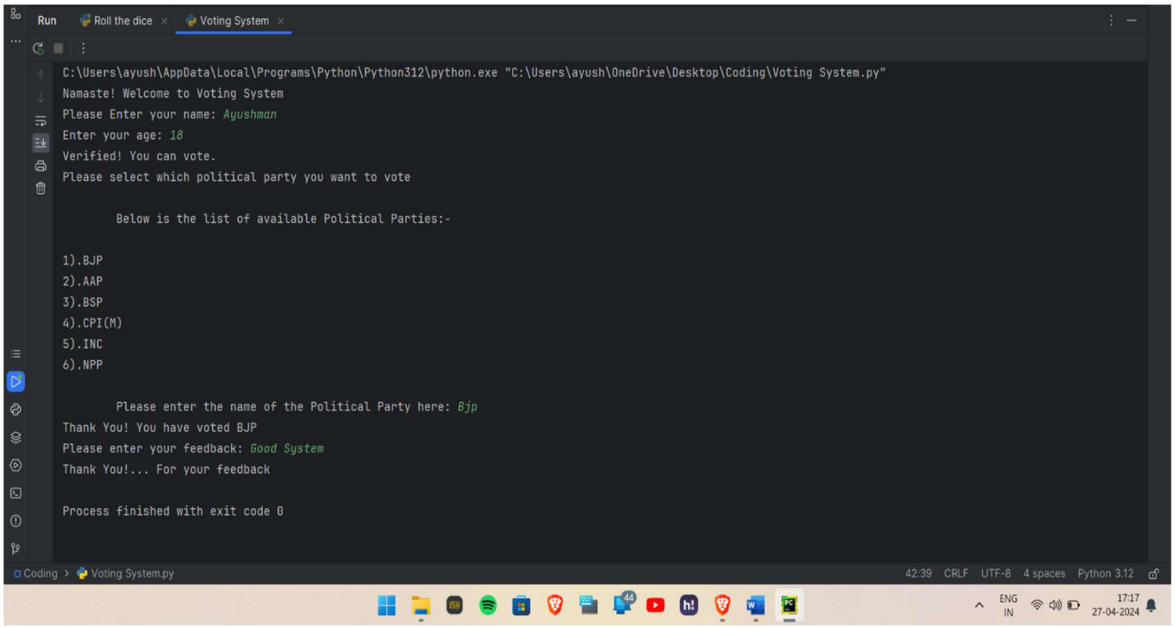
9. *Voting System*

Code:

```
print("Namaste! Welcome to Voting System")
name=input("Please Enter your name: ")
age=int(input("Enter your age: "))

if age>=18:
    print("Verified! You can vote.")
    while True:
        vote=input('''Please select which political party you want to vote\n
        Below is the list of available Political Parties:-
```

```
    \n1).BJP\n2).AAP\n3).BSP\n4).CPI(M)\n5).INC\n6).NPP\n
    Please enter the name of the Political Party here: ''').upper()

    if vote=="BJP":
      print(f"Thank You! You have voted {vote}")

    elif vote=="AAP":
      print(f"Thank You! You have voted {vote}")

    elif vote =="BSP":
      print(f"Thank You! You have voted {vote}")

    elif vote=="CPI(M)":
      print(f"Thank You! You have voted {vote}")

    elif vote=="INC":
      print(f"Thank You! You have voted {vote}")

    elif vote=="NPP":
      print(f"Thank You! You have voted {vote}")

    else:
      print("Wrong choice")
      continue
    break

else:
  print("You are not eligible to vote")

feed=input("Please enter your feedback: ")
print("Thank You"
```

Output



Thank You