Back End Programmes

- 1- Python Programmes:

-***Countdown timer program***

-***Shopping cart exercise***

-***Quiz Game***

- 2- C# Programmes:

- **Number guessing game**
- **Rock, Paper, Scissors**

Countdown timer program:

```
import time

my_time = int(input("Enter the time in seconds: "))

for x in range(my_time, 0, -1):
    seconds = x % 60
    minutes = int(x / 60) % 60
    hours = int(x / 3600)
    print(f"{hours:02}:{minutes:02}:{seconds:02}")
    time.sleep(1)

print("TIME'S UP!")
```

Shopping cart exercise:

```
foods = []
prices = []
total = 0
while True:
    food = input("Enter a food to buy (q to quit): ")
    if food.lower() == "q":
        break
    else:
        price = float(input(f"Enter the price of a {food}: $"))
        foods.append(food)
        prices.append(price)

print("----- YOUR CART -----")

for food in foods:
    print(food, end=" ")

for price in prices:
    total += price
print()
print(f"Your total is: ${total}")
```

Quiz Game:

```
questions = ("How many elements are in the periodic table?: ",
             "Which animal lays the largest eggs?: ",
             "What is the most abundant gas in Earth's atmosphere?: ",
             "How many bones are in the human body?: ",
             "Which planet in the solar system is the hottest?: ")

options = (("A. 116", "B. 117", "C. 118", "D. 119"),
           ("A. Whale", "B. Crocodile", "C. Elephant", "D. Ostrich"),
           ("A. Nitrogen", "B. Oxygen", "C. Carbon-Dioxide", "D. Hydrogen"),
           ("A. 206", "B. 207", "C. 208", "D. 209"),
           ("A. Mercury", "B. Venus", "C. Earth", "D. Mars"))

answers = ("C", "A", "B", "A", "B")
guesses = []
score = 0
question_num = 0

for question in questions:
    print("----------------------")
    print(question)
    for option in options[question_num]:
        print(option)
```

```
valid_input = False
    while not valid_input:
        guess = input("Enter (A, B, C, D): ").upper()
        if guess not in ["A", "B", "C", "D"]:
            print("Invalid input. Please enter a valid option (A, B, C, D).")
        else:
            valid_input = True

guesses.append(guess)
    if guess == answers[question_num]:
        score += 1
        print("CORRECT!")
    else:
        print("INCORRECT!")
        print(f"{answers[question_num]} is the correct answer")
    question_num += 1

print("----------------------")
print("      RESULTS       ")
print("----------------------")

print("answers: ", end="")
for answer in answers:
    print(answer, end=" ")
print()

print("guesses: ", end="")
for guess in guesses:
    print(guess, end=" ")
print()

score = int(score / len(questions) * 100)
print(f"Your score is: {score}%")
```

Number guessing game

```
Random random = new Random();
bool playAgain = true;
int min = 1;
int max = 10;
int guess;
int number;
int guesses;
String response;

while (playAgain)
{
    guess = 0;
    guesses = 0;
    response = "";
    number = random.Next(min, max + 1);

        while (guess != number)
        {
            Console.WriteLine("Guess a number between " + min + " - " + max + " :");
            guess = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Guess: " + guess);
```

```
if (guess > number)
            {
                Console.WriteLine(guess + " is high!");
            }
            else if (guess < number)
            {
                Console.WriteLine(guess + " is low!");
            }
            guesses++;
        }
        Console.WriteLine("Number: " + number);//exiting the while loop,means we got the right number
        Console.WriteLine("YOU WIN!");
        Console.WriteLine("Guesses: " + guesses);

        Console.WriteLine("Would you like to play again (Y/N):");
        response = Console.ReadLine();
        response = response.ToUpper();

        if (response == "Y")
        {
            playAgain = true;
        }
        else
        {
            playAgain = false;
        }
}
Console.WriteLine("Thanks for playing! ... I guess");
```

Rock, Paper, Scissors:

```
Random random = new Random();
bool playAgain = true;
String player;
String computer;
String answer;

while (playAgain)
    {
        player = "";
        computer = "";
        answer = "";

        while (player != "ROCK" && player != "PAPER" && player != "SCISSORS")
        {
            Console.Write("Enter ROCK, PAPER, or SCISSORS: ");
            player = Console.ReadLine();
            player = player.ToUpper();
        }

            switch (random.Next(1, 4))
            {
                case 1:
                    computer = "ROCK";
                    break;
                case 2:
                    computer = "PAPER";
                    break;
```

```
    case 3:
        computer = "SCISSORS";
        break;
}

Console.WriteLine("Player: " + player);
Console.WriteLine("Computer: " + computer);

switch (player)
{
    case "ROCK":
        if (computer == "ROCK")
        {
            Console.WriteLine("It's a draw!");
        }
        else if (computer == "PAPER")
        {
            Console.WriteLine("You lose!");
        }
        else
        {
            Console.WriteLine("You win!");
        }
        break;

case "PAPER":
        if (computer == "ROCK")
        {
            Console.WriteLine("You win!");
        }
        else if (computer == "PAPER")
        {
            Console.WriteLine("It's a draw!");
        }
```

```
        else
        {
            Console.WriteLine("You lose!");
        }
        break;
    case "SCISSORS":
        if (computer == "ROCK")
        {
            Console.WriteLine("You lose!");
        }
        else if (computer == "PAPER")
        {
            Console.WriteLine("You win!");
        }
            else
        {
                Console.WriteLine("It's a draw!");
        }
        break;
    }

    Console.Write("Would you like to play again (Y/N): ");
    answer = Console.ReadLine();
    answer = answer.ToUpper();
```

```
    if (answer == "Y")
    {
        playAgain = true;
    }
    else
    {
        playAgain = false;
    }

}

Console.WriteLine("Thanks for playing!");
```