1. **How do lists and tuples differ in terms of mutability and performance? When would you choose one over the other?**

**Ans).** **Lists**: Lists are mutable, meaning we can modify them after creating them. We can add, remove, or change elements of list.

**Tuples**: Tuples are immutable, which means once they are created, we cannot change their elements.

**In terms of performance,**

* **Lists**: Since lists are mutable, they have additional overhead for maintaining that mutability, which can make them slightly slower than tuples in some cases.
* **Tuples**: Because tuples are immutable, they can be more memory efficient and faster to access than lists.

**When would you choose one over the other :-**

* When we need a collection of items that may change (adding/removing elements), there we can use list.
* When we need to ensure that the collection of items remains constant then there we use tuples.

1. **Take a number and use the += operator to increase its value by 10.**

**Ans).** num = int(input("Enter a number: "))

num += 10

print(num)

1. **Write a Python program to check if a given year is a leap year or not.**

**Ans).** year = int(input("Enter a year: "))

if year % 4 == 0 or year % 100!= 0 and year % 400 ==0:

    print(year, "is a leap year.")

else:

    print(year, "is not a leap year.")

1. . **Write a program that asks the user to enter their marks and displays their grade:**

• 90-100: A

• 80-89: B

• 70-79: C

• 60-69: D

• Below 60: F

**Ans).** grade = int(input("Enter your grade: "))

if grade>=90:

    print("A")

elif grade>=80:

    print("B")

elif grade>=70:

    print("C")

elif grade>=60:

    print("D")

else:

    print("F")