

Ans1 "The `for` loop in Python is used to iterate over a sequence (list, tuple, string, etc.) or other iterable objects. It executes a block of code repeatedly until the loop reaches its termination condition. For example:

```
numbers = [1, 2, 3, 4, 5]
```

```
sum = 0
```

```
for num in numbers:
```

```
    sum += num
```

```
print('The sum is:', sum)
```

```
...
```

This code will calculate the sum of all numbers in the list `numbers` and print the result."

Ans2 In Java, what is the difference between `==` and `.equals()` when comparing objects?

The `==` operator checks whether two object references point to the same memory location, i.e., whether they are the same object in memory. It compares object references.

On the other hand, the `.equals()` method is used to compare the actual contents (or values) of two objects. By default, the `.equals()` method in Java compares object references, but it can be overridden in a class to provide custom comparison logic based on object contents.

Ans3 In statistics, the mean (or average) of a set of numbers is calculated by summing all the numbers in the set and dividing the sum by the total count of numbers. For example, for the set of numbers {3, 5, 7, 9, 11}, the mean is calculated as:

Mean = $(3 + 5 + 7 + 9 + 11) / 5 = 35 / 5 = 7$.