Session 4: Lists (Solutions Only)

Q1. Basic Database of Epidemic Cases in the US

Working with your discussion group, create the backbone of a data management system for a new epidemic in the US. Concretely speaking, you should write the following three functions.

a) A function called `addCase` with two inputs:

- name: the name of the patient.
- state: the state the person is from.

The function should add this entry to the database.

b) A function called `retrieveCase` with one input:

- index: a number associated with the case. The first case is given index 0, the second case index 1, etc.

The function should return a list of two elements describing the case associated with this index. The first element is the patient's name and the second is the State.

c) A function called `totalCases` with no input. The function returns an integer representing the total number of cases so far.

See the test code below for sample outputs.

```
[12]: data=[]
      def addCase(name,state):
          'Add a case to the database, stored internally as list "data".'
          num=len(data)
          data.append([name,state])

      def totalCases():
          'Obtain the total number of cases.'
          return len(data)

      def retrieveCase(index):
          'Retrieve a particular case using its index.'
          if index>=len(data) or index<0:
              print(f'Invalid index. Need to be between 0 and {len(data)-1}.')
          else:
              name,state=data[index]
              print(f'Case {index} is {name} in {state}.')
```

```
[13]: addCase('Alice','New York')
      addCase('Bob','California')
      addCase('Jack','New York')
      totalCases()
```

```
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```

```
[14]: retrieveCase(0)
```

```
Case 0 is Alice in New York.
```

```
[15]: retrieveCase(1)
```

```
Case 1 is Bob in California.
```

```
[16]: retrieveCase(2)
```

```
Case 2 is Jack in New York.
```

```
[17]: retrieveCase(3)
```

```
Invalid index. Need to be between 0 and 2.
```