INSTRUCTION:
Design and implement a Java application for the application described below. You must apply `Iterator` Design Pattern.

An application displays data from a file `Candidates.txt` containing details of different IT professionals who have offered their candidature for a job opening. For simplicity, consider only three attributes - name, current working location and certification type. The content of `Candidates.txt` is as below:

```
                        Candidates.txt
Partha,Sun MicroSystems,Michigan
Pavan,Sun MicroSystems,California
D.R.Sudhakar,Microsoft,California
Clark,Microsoft,Michigan
Mike,Sun MicroSystems,Georgia
Venkatesh,Microsoft,Georgia
Arnold,Sun MicroSystems,California
Tom,IBM,Georgia
Bobby,IBM,Michigan
Denise,None,Michigan
Bill,None,Michigan
```

`AllCandidates` is a container class that:
- Reads data from the data file as part of its constructor and stores the data in the form of a group of `Candidate` objects inside an instance variable called `data` of `ArrayList` type.
- Implements the following methods:
  - `getAllCandidatesIterator ()` – returns the iterator of `data` instance variable that can be used to traverse through all the `Candidate` objects stored in `data` sequentially.
  - `getCertifiedCandidatesIterator (String type)` – creates and returns an iterator of type `CertifiedCandidatesIterator`.

`CertifiedCandidatesIterator` implements the built-in `java.util.Iterator` interface. As part of its constructor, the `CertifiedCandidatesIterator` iterator accepts a certification type and an instance of `AllCandidates` as input. The iterator uses this `AllCandidates` instance to access the data stored inside the `AllCandidates` container. This iterator works as a filtered iterator for the candidate data contained in the `AllCandidates` container and returns the group of candidates with the specified certification type in a sequential manner. It implements the `java.util.Iterator` methods as follows:
- `hasNext()` – Checks to see if there are any more candidates with the specified certification type.
- `next()` – Returns the next candidate, if any, with the specified certification type. If there is none, it throws a `NoSuchElementException` exception. Ideally, a client would invoke the `next()` method only if a prior call to the `hasNext()` method returns true.
- `remove()` – Because the scope of the application does not deal with deleting the profile of a candidate, this method implementation does nothing.

A client `SearchManager` uses `AllCandidates` container to get the first iterator that can traverse through all of its `Candidate` objects sequentially and use it to display all

the candidates data and the second iterator that is a filtered iterator that can be used to display candidates of the specified certification type.

1. Apply `Iterator` Design Pattern to design your system. Draw a UML class diagram to show your design for the system.

2. Implement your design in Java. Test your implementation and produce the output below.

```
Printing file content:
Partha,Sun MicroSystems,Michigan
Pavan,Sun MicroSystems,California
D.R.Sudhakar,Microsoft,California
Clark,Microsoft,Michigan
Mike,Sun MicroSystems,Georgia
Venkatesh,Microsoft,Georgia
Arnold,Sun MicroSystems,California
Tom,IBM,Georgia
Bobby,IBM,Michigan
Denise,None,Michigan
Bill,None,Michigan

Enter 1 to display all candidates, 2 to display certified candidates, 0 to exit: 1
Partha, Sun MicroSystems, Michigan
Pavan, Sun MicroSystems, California
D.R.Sudhakar, Microsoft, California
Clark, Microsoft, Michigan
Mike, Sun MicroSystems, Georgia
Venkatesh, Microsoft, Georgia
Arnold, Sun MicroSystems, California
Tom, IBM, Georgia
Bobby, IBM, Michigan
Denise, None, Michigan
Bill, None, Michigan
Enter 1 to display all candidates, 2 to display certified candidates, 0 to exit: 2
Enter certification type: ibm
Tom, IBM, Georgia
Bobby, IBM, Michigan
Enter 1 to display all candidates, 2 to display certified candidates, 0 to exit: 2
Enter certification type: microsoft
D.R.Sudhakar, Microsoft, California
Clark, Microsoft, Michigan
Venkatesh, Microsoft, Georgia
Enter 1 to display all candidates, 2 to display certified candidates, 0 to exit: 2
Enter certification type: none
Denise, None, Michigan
Bill, None, Michigan
Enter 1 to display all candidates, 2 to display certified candidates, 0 to exit: 2
Enter certification type: sun microsystems
Partha, Sun MicroSystems, Michigan
Pavan, Sun MicroSystems, California
Mike, Sun MicroSystems, Georgia
Arnold, Sun MicroSystems, California
Enter 1 to display all candidates, 2 to display certified candidates, 0 to exit: 0
```