**1 Implementation Task**

A persistent storage is given as a map of key value pairs. The map has the following interface:

* void put(String key, Object value): store a value under a given key
* Object get(String key): retrieve the value for a given key
* boolean contains(String key): returns true if the key is already used to store a value in the persistent storage.
* boolean remove(String key): returns true if the remove was successful

1. Implement the persistent storage – you may use standard language libraries (e.g. a map implementation in Java). The storage must be able to survive application restarts;
2. Implement a) without the standard language libraries (e.g. in Java do not use any of the standard provided map implementations);
3. Describe (e.g. using text and diagrams) how could a distributed (existing with the same state in multiple processes at the same time) version of the persistent storage be implemented;  No implementaion is required;

**2 Object-Oriented Design**

Design and implement an object model of the object in the following picture. Please describe the context, in which the object model should be applied.



**3 Open Question**

Please answer the question: “How many buses (public transport) are there in Sofia?” by approximating on the basis of logical conclusions. Feel free to provide also any assisting drawings or other representations supporting your conclusions.