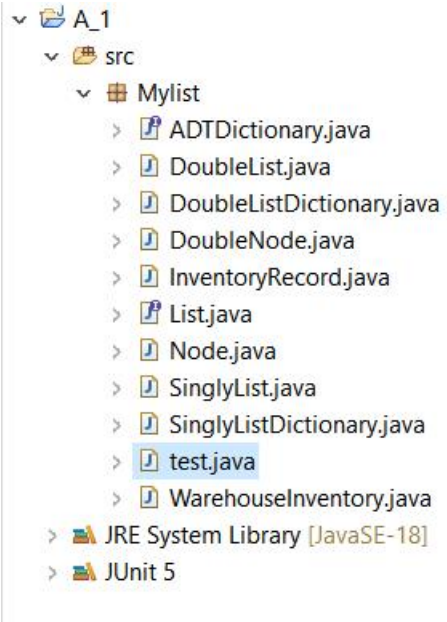

Singly linked list , double linked list ,warehouse Inventory and test class have been implemented in our project.

Problem 1. (10 marks) Given above example Java code, please further program a list based dictionary implementation.

Class:

Node.java
SinglyList.java
SinglyListDictionary.java

Interface:

List.java
ADTDictionary.java

Problem 2. (6 marks) Use the asymptotic analysis to analyze the (1) best case, (2) average case, and (3) worst case time cost of each method implementation of Problem

Table 1Asymptotic Analysis for List-based Dictionary

Problem 3. (10 marks) Given above example Java code, please further program a double list-based dictionary implementation.

Class:

DoubleNode.java
DoubleList.java
DoubleListDictionary.java

Interface:

List.java
ADTDictionary.java

Problem 4. (6 marks) Use the asymptotic analysis to analyze the (1) best case, (2) average case, and (3) worst case time cost of each method implementation of Problem 3. Please fill in the table in the answer sheet.

Table 2 Asymptotic Analysis for Double List-based Dictionary

Problem 5 (40 marks). Define a database called WarehouseInventory.

We implements this database with SinglyListDictionary.

Class:

SinglyListDictionary.java
WarehouseInventory.java
InventoryRecord.java
Test.java

Main() function is in the class WarehouseInventory.Test class testing 18 cases of Singly linked list , double linked list ,warehouse Inventory

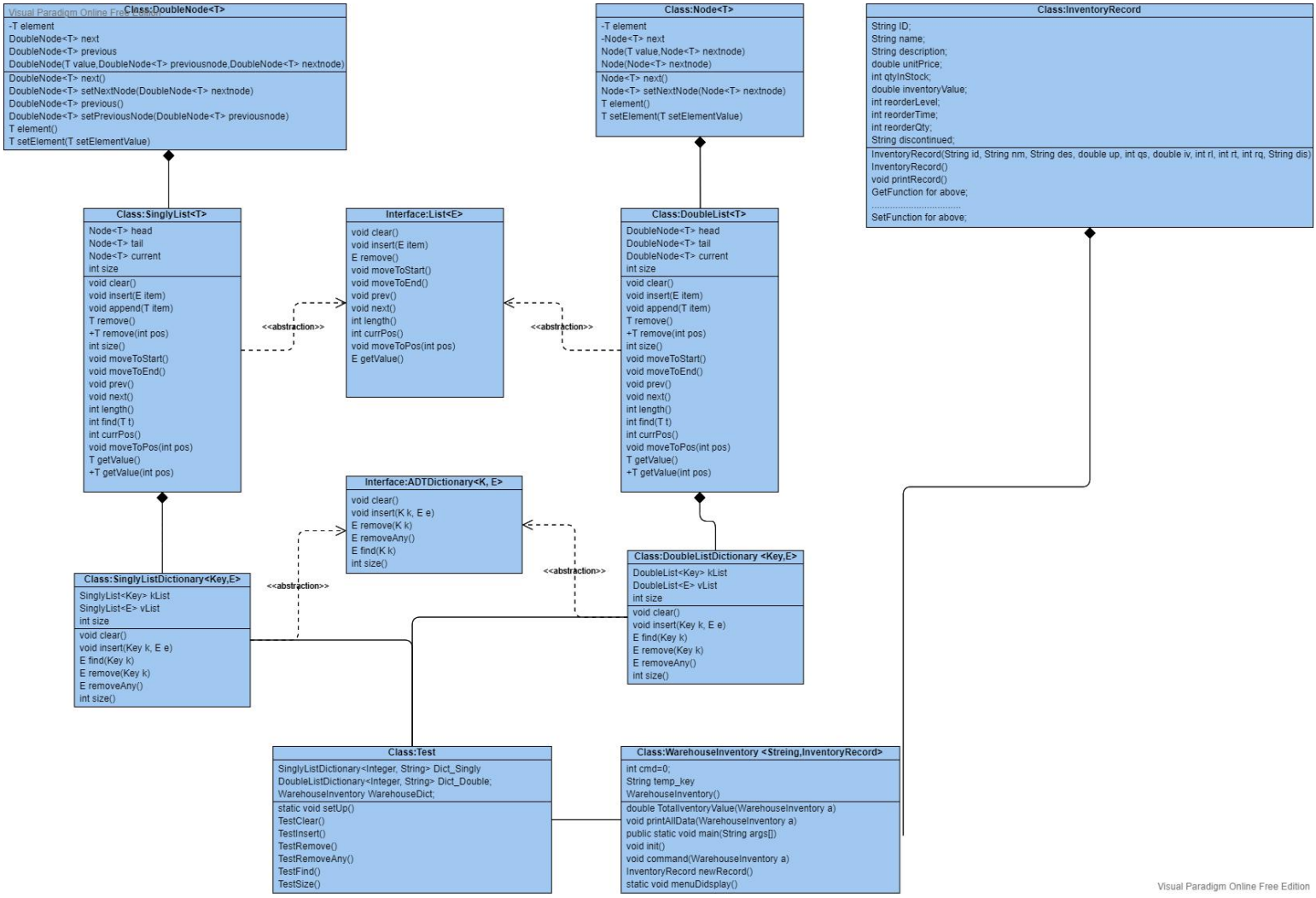

Figure 1 uml diagram

Asymptotic Analysis for List-based Dictionary

Operation	Best cast time	Worst case time	Average case time
clear	O(1)	O(1)	O(1)
insert	O(1)	O(1)	O(1)
remove	O(n)	O(n)	O(n)
removeAny	O(1)	O(1)	O(1)
find	O(n)	O(n)	O(n)
size	O(1)	O(1)	O(1)

Table 3Asymptotic Analysis for List-based Dictionary

Asymptotic Analysis for Double List-based Dictionary

Operation	Best cast time	Worst case time	Average case time
clear	O(1)	O(1)	O(1)
insert	O(1)	O(1)	O(1)
remove	O(n)	O(n)	O(n)
removeAny	O(1)	O(1)	O(1)
find	O(n)	O(n)	O(n)
size	O(1)	O(1)	O(1)

Table 4 Asymptotic Analysis for Double List-based Dictionary