CSC2001 ASSIGNMENT 1 REPORT

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UCT CPT

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OO Design

I've created a total of 5 classes:

- GenericsKbArrayApp
  - GenericsSearch
- GenericsKbBSTApp
  - GenericBinaryST
  - TreeNode

GenericsKbArrayApp and GenericsKbBSTApp are the main functions for the array and bst respectively. GenericSearch contains the search methods, getIndex, as well as a get Confidence and fullSearch method.

TreeNode class contains the nodes , left and right and the data stored in them. GenericBinarySt consists of the search function as well as its helper, the insert function, the Traversal function, similar search function, delete function, min function (helps delete) and searchfull function as well as all their helpers. TreeNode provides the nodes for GenericBinaryST to work with.

Array App:

Case 1:

```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.2\lib\idea_rt.jar=61270:C:\Program F
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
1
Enter file name
genericskb.txt
Knowledge base loaded successfully.
```

Case 2:

```
Knowledge base loaded successfully.
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
2
Enter the term:
toasting
Enter the statement:
ye
Enter the confidence score:
1.0
Statement for term toasting has been updated.
```

Case 3:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
3
Enter the term to search:
toasting
toasting    ye  1.0
Would you like to see similar results? y/n
y
toasting
```

3

Case 4:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
4
Enter the term:
toasting
Enter the statement to search for:
ye
The statement was found and has a confidence score of 1.0.
```

Case 5:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
5
Goodbye
```

BST App:

Case 1:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
1
Enter file name
genericskb.txt
Knowledge base loaded successfully.
```

Case 2:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
2
Enter the term:
melatonin
Enter the statement:
from glands
Enter the confidence score:
1.0
melatonin   from glands 1.0
Statement for term melatonin has been updated.
```

Case 3:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
3
Enter the term to search:
packer
Statement found: Packers have (part) arms. (Confidence score: 1.0)
would you like to see similar results? y/n
y
backpacker
packer
```

Case 4:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
4
melatonin
Enter the term:
Enter the statement to search for:
from glands
The statement was found and has a confidence score of 1.0.
```

Case 5:

```
Choose an action from the menu:
1. Load a knowledge base from a file
2. Add a new statement to the knowledge base
3. Search for an item in the knowledge base by term
4. Search for a item in the knowledge base by term and sentence
5. Quit
Enter your choice:
5
Goodbye
```

<u>Creativity:</u>

I've enhanced the search functionality to search for similar terms . such as terms that contain other terms (e.g. "packer" and "backpacker").

I've added code to account for input mismatch when entering letters instead of numbers for the actions in menu, to prevent errors.

In array app I've added a function to action 2 to insert a line into the array if it is not found (and therefore not updated).

Git log:

0: commit f4aad32aa7d0f82be70e98a750075fa49e837aa2

1: Author: nRagos <gchetty241@outlook.com>

2: Date: Fri Mar 8 18:22:03 2024 +0200

3:

4: report and makefile

5:

6: commit 5ffc1992367770b4bcc4e7fe07a0c9f703f87487

7: Author: nRagos <gchetty241@outlook.com>

8: Date: Fri Mar 8 17:37:41 2024 +0200

9:

...

85: Author: nRagos <gchetty241@outlook.com>

86: Date: Wed Mar 6 21:51:02 2024 +0200

87:

88: redo

89:

90: commit a11b3b527822829194b0095cdf51754c1f3def2a

91: Author: nRagos <124688834+nRagos@users.noreply.github.com>

92: Date: Wed Mar 6 20:13:09 2024 +0200

93:

94: Initial commit