As in the past, comments in RED, input in BLUE and output in BLACK.

This program was very straight-forward. Really not much to do since the main methods were all given. I wrote my own traversal method. I didn't even look at how the given program did it. It can traverse the tree in either direction depending on a boolean variable. The output illustrates this. I did type it in instead of just copy/paste. I had wanted to change some variable names to make the code more transparent.

How many random entries to start?

10

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

5

Bryce s21712746 3.3 // 5 sorts in order and 6 in reverse order.

Cade s99130138 3.27

Clayton s05455175 3.46

Fletcher s50683617 2.05

Gracie s35039069 2.23

Jared s00739365 2.58

Jayla s47769496 3.58

Jayson s96593291 2.2

Kendall s48213341 2.85

Kiley s36648716 3.99

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

6

Kiley s36648716 3.99

Kendall s48213341 2.85

Jayson s96593291 2.2

Jayla s47769496 3.58

Jared s00739365 2.58

Gracie s35039069 2.23

Fletcher s50683617 2.05

Clayton s05455175 3.46

Cade s99130138 3.27

Bryce s21712746 3.3

Please enter one of the following:

-----------------------------------------------

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4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

1

Please enter student data. // Insert

First the name:

slguih

Now the id

s74920485

Finally, the gpa

2.6

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

6

slguih s74920485 2.6 // Here's the new entry. In the proper place.

Kiley s36648716 3.99

Kendall s48213341 2.85

Jayson s96593291 2.2

Jayla s47769496 3.58

Jared s00739365 2.58

Gracie s35039069 2.23

Fletcher s50683617 2.05

Clayton s05455175 3.46

Cade s99130138 3.27

Bryce s21712746 3.3

Please enter one of the following:

-----------------------------------------------

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6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

2 // Fetch

Please input a Student Name to search for

Kiley

Kiley s36648716 3.99

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

3

Please input a Student Name to delete

Kiley

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

6

slguih s74920485 2.6 // Note that Kiley is missing.

Kendall s48213341 2.85

Jayson s96593291 2.2

Jayla s47769496 3.58

Jared s00739365 2.58

Gracie s35039069 2.23

Fletcher s50683617 2.05

Clayton s05455175 3.46

Cade s99130138 3.27

Bryce s21712746 3.3

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

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4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

3 // Delete. Two deletes because of a bug I had. The second delete failed in a strange way.

Please input a Student Name to delete

Cade

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

6

slguih s74920485 2.6

Kendall s48213341 2.85

Jayson s96593291 2.2

Jayla s47769496 3.58

Jared s00739365 2.58

Gracie s35039069 2.23

Fletcher s50683617 2.05

Clayton s05455175 3.46

Bryce s21712746 3.3

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

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6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

4 // Update

Input a Student Name of a record to update

Gracie

Please enter student data.

First the name:

adflguihaldf

Now the id

s74027483

Finally, the gpa

3.8

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

6

slguih s74920485 2.6

Kendall s48213341 2.85

Jayson s96593291 2.2

Jayla s47769496 3.58

Jared s00739365 2.58

Fletcher s50683617 2.05

Clayton s05455175 3.46

Bryce s21712746 3.3

adflguihaldf s74027483 3.8

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

5

adflguihaldf s74027483 3.8

Bryce s21712746 3.3

Clayton s05455175 3.46

Fletcher s50683617 2.05

Jared s00739365 2.58

Jayla s47769496 3.58

Jayson s96593291 2.2

Kendall s48213341 2.85

slguih s74920485 2.6

Please enter one of the following:

-----------------------------------------------

1 to insert a new student's information

2 to fetch and output a student's information

3 to delete a student's information

4 to update a student's information

5 to output the list in sorted order

6 to output the list in reverse sorted order

7 to exit the program

-----------------------------------------------

7 // exit