How to run the program

You can compile and run the examples (or test cases) by compile all classes in the source code and run the TestCases class, or if you want to customize the infix you can do it by follow the pattern in the TestCases class

Limitations

There are few limitations in this program: 1. The program will not work correctly if the parentheses are mismatched. 2. This program can do int/int division. 3. The program will not work properly if the infix is not correct.

More Information

Users can modify the space of the TreeExp and the Tree (TreeCell) in the TreeExp.printExpTree(), and TreeCell.printTree() ,but you should make sure that you change only the space, otherwise the program may not work correctly.

Test case 1: `(8*9+2)*9*2+9`

```
------- Test 1 -------
Postfix: 89*2+9*2*9+
Tree:
   9

+

      2

   *

         9

      *

            2

         +

               9

            *

               8

Prefix from Tree: +**+*892929
Postfix from Tree: 89*2+9*2*9+
Infix from Tree: (((((8*9)+2)*9)*2)+9)
Evaluate the equation from Tree: 1341


 ExpTree:
 9

+

  2

 *

   9

  *

    2

   +

     9

    *

     8

----End of Test 1 ----
```

Test case 2: `(9+6/3*5)-(5)`

```
------- Test 2 -------
Postfix: 963/5*+5-
Tree:
   5

-

         5

      *

            3

         /

            6

   +

      9

Prefix from Tree: -+9*/6355
Postfix from Tree: 963/5*+5-
Infix from Tree: ((9+((6/3)*5))-5)
Evaluate the equation from Tree: 14


 ExpTree:
 5

-

   5

  *

    3

   /

    6

 +

  9

----End of Test 2 ----
```

Test case 3 : `(9*(8+2))*((9+5)*5)+(((5*(1+5)*2+9*9)))`

```
------- Test 3 -------
Postfix: 982+*95+5**515+*2*99*++
Tree:
         9

      *

         9

   +

         2

      *

               5

            +

               1

         *

            5

+

         5

      *

            5

         +

            9

   *

            2

         +

            8

      *

         9

Prefix from Tree: +**9+82*+955+**5+152*99
Postfix from Tree: 982+*95+5**515+*2*99*++
Infix from Tree: (((9*(8+2))*((9+5)*5))+(((5*(1+5))*2)+(9*9)))
Evaluate the equation from Tree: 6441
```

Test case 3 continue on the next page.

```
 ExpTree:
   9

  *

   9

 +

   2

  *

     5

    +

     1

   *

    5

+

   5

  *

    5

   +

    9

 *

    2

   +

    8

  *

   9

----End of Test 3 ----
```

Test case 4: `(1*1+1-2+2-1)*1*(1*4)*(1/1)+((1+5)/3*2-3)/(1*1*1*1)`

```
------- Test 4 -------
Postfix: 11*1+2-2+1-1*14**11/*15+3/2*3-+11*1*1*/
```

Since the tree is too long to fit in this page, you have to run this test case yourself.

```
Prefix from Tree: /+***-+-+*1112211*14/11-*/+15323***1111
Postfix from Tree: 11*1+2-2+1-1*14**11/*15+3/2*3-+11*1*1*/
Infix from Tree: ((((((((((1*1)+1)-2)+2)-1)*1)*(1*4))*(1/1))+((((1+5)/3)*2)-3))/(((1*1)*1)*1))
Evaluate the equation from Tree: 5
```

Test case 5: `(9+9)*(9/9-1)*(4/2*5+2)`

```
------- Test 5 -------
Postfix: 99+99/1-*42/5*2+*
Tree:
      2

   +

         5

      *

            2

         /

            4

*

         1

      -

            9

         /

            9

   *

         9

      +

         9

Prefix from Tree: **+99-/991+*/4252
Postfix from Tree: 99+99/1-*42/5*2+*
Infix from Tree: (((9+9)*((9/9)-1))*(((4/2)*5)+2))
Evaluate the equation from Tree: 0
```

```
ExpTree:
 2

+

  5

 *

   2

  /

   4

*

  1

 -

   9

  /

   9

 *

  9

 +

  9

----End of Test 5 ----
```