

## CS 562 - APPLIED SOFTWARE ENGINEERING

As a class project, I'm testing the library **pyparsing.py** which is used to create simple grammar.

As of now, I have tested few methods of the pyparsing.py module by creating a grammar for executing arithmetic expressions and SQL queries.

### Instructions to run –

#### Step 1

Import the following files from github to a folder pyparsing

1. pyparsing.py
2. calculator.py
3. calculator.tstl
4. SimpleSQL.py
5. SimpleSQL.tstl
6. randomtester.py

#### Step 2

Navigate to the folder pyparsing (where the above 6 files are there) in the terminal.

#### Step 3

Run the following commands to execute the tstl code –

***tstl filename.tstl***

***python randomtester.py***

calculator module will output the values of expressions generated randomly.

simpleSQL module will output the column names, tables and the where conditions of a given SQL query.

# Output screens

## For calculator module

```
panini@panini: ~/tstl/pypparsing
(6 + (400)) * (((453)) / 530) * ((357) + 436) = 275182.969811
quit = 0
None
((33)) = 33
(((504 * 729 + 590 - 262))) = 367744
366 / (((46 / 888) - (669 / ((653)))) - ((979 * (136))) * 788 = -104917847.518
(131 / 642 * 747) + (((152) + (591) * 16 - (410) - (225)) - (592) = 8533.42523364
(153) = 153
((((((827) / 421)))) = 1.96437654632
((605) / ((295))) = 2.05084745763
((350)) + 973 = 1323
555 - (((395)) / 11 + 542 / (741) * 175) = 391.088210036
(6 + (400)) * (((453)) / 530) * ((357) + 436) = 275182.969811
quit = 0
None
Coverage.py warning: No data was collected.
Coverage.py warning: No data was collected.
(787 / ((955)) * 991 - ((447) + 418 * (725 * 284))) * 76 = -15652073.3068
(617 * 925) + (((153))) = 570878
(((102))) = 102
((672 - 268)) = 404
((114)) = 114
((((145))) - (529 + 345 - 349 + (891) * 130)) = -116210
(569 - 202 - (229 + 735) / 723 / 146 * (648) - (297) * 286 * (30) + 627 - 998) / (108) = -23595.7307204
(((194))) = 104
((256) / (837 + 282)) - (993 * ((667))) / 767 - 287 * (295) + 702 + 481 / 450 / 543 + 751 / (201) / (165) = -84826.2811617
((28) + (234 + 334) * 523) = 297892
quit = 0
None
(787 / ((955)) * 991 - ((447) + 418 * (725 * 284))) * 76 = -15652073.3068
(617 * 925) + (((153))) = 570878
(((102))) = 102
((672 - 268)) = 404
((114)) = 114
((((145))) - (529 + 345 - 349 + (891) * 130)) = -116210
(569 - 202 - (229 + 735) / 723 / 146 * (648) - (297) * 286 * (30) + 627 - 998) / (108) = -23595.7307204
(((194))) = 104
((256) / (837 + 282)) - (993 * ((667))) / 767 - 287 * (295) + 702 + 481 / 450 / 543 + 751 / (201) / (165) = -84826.2811617
((28) + (234 + 334) * 523) = 297892
quit = 0
None
((339 * 957 / 997 * ((303))) + (176)) = 98771.9568706
((773) * (392 * ((712))) - 334 - (89) * 157 * ((527 * 63 - 747 - 835 + (403)))) = 5880423
((740)) + (900) = 1640
(209 * 530 + 275 / (301) / (576 / (647) + 358) - 12 * 804 + 851 + ((628)) - (634) * (488) * 264 + (454 * (313 - 46 / 635) - 162) + (798 / 687 / (168)) - 533 * 627 = -81769170.8787
(((512)) / (361 / 9 / (542))) = 6918.38227147
((676 + 559 + 325 - (712 / (205))) + 44 - 130) + 877 - ((340)) = 2007.52682927
(480 - 428) - (((666 + 40)) / ((717))) / (182 - 418 / 264 / 742) / ((472)) = 51.9999884077
(((103) * 34)) = 3502
(((766))) - 663 - 76 / (201) + ((317)) * 814 - 230 + 423 / 849 + (749) * 316 + ((411)) * (653 * 781 - 348) / 238 = 1408817.7256
(949 / ((535 * (207))) / (351) - (670) * 106 - 178 / (668)) - (((409) + (390) - (131 + 984))) = -70704.2664427
quit = 0
None
((339 * 957 / 997 * ((303))) + (176)) = 98771.9568706
((773) * (392 * ((712))) - 334 - (89) * 157 * ((527 * 63 - 747 - 835 + (403)))) = 5880423
((740)) + (900) = 1640
(209 * 530 + 275 / (301) / (576 / (647) + 358) - 12 * 804 + 851 + ((628)) - (634) * (488) * 264 + (454 * (313 - 46 / 635) - 162) + (798 / 687 / (168)) - 533 * 627 = -81769170.8787
(((512)) / (361 / 9 / (542))) = 6918.38227147
```

## For simpleSQL module

```
panini@panini: ~/tstl/pypparsing
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
SELECT ABC.A FROM ABC WHERE A gt'def' AND B=123 ->
tokens = ['select', ['ABC.A'], 'from', ['ABC'], ['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
tokens.columns = ['ABC.A']
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
Coverage.py warning: No data was collected.
Coverage.py warning: No data was collected.
SELECT ABC.A FROM ABC WHERE A gt'def' AND B=123 ->
tokens = ['select', ['ABC.A'], 'from', ['ABC'], ['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
tokens.columns = ['ABC.A']
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
SELECT ABC.A FROM ABC WHERE A gt'def' AND B=123 ->
tokens = ['select', ['ABC.A'], 'from', ['ABC'], ['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
tokens.columns = ['ABC.A']
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
SELECT ABC.A FROM ABC WHERE A gt'def' AND B=123 ->
tokens = ['select', ['ABC.A'], 'from', ['ABC'], ['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
tokens.columns = ['ABC.A']
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
SELECT ABC.A FROM ABC WHERE A gt'def' AND B=123 ->
tokens = ['select', ['ABC.A'], 'from', ['ABC'], ['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
tokens.columns = ['ABC.A']
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
SELECT ABC.A FROM ABC WHERE A gt'def' AND B=123 ->
tokens = ['select', ['ABC.A'], 'from', ['ABC'], ['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
tokens.columns = ['ABC.A']
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
SELECT ABC.A FROM ABC WHERE A gt'def' AND B=123 ->
tokens = ['select', ['ABC.A'], 'from', ['ABC'], ['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
tokens.columns = ['ABC.A']
tokens.tables = ['ABC']
tokens.where = [['where', ['A', 'gt', "'def'", 'and', ['B', '=', '123']]]]
None
^Z
python randontester.py
panini@panini:~/tstl/pypparsing$
```