HW7 CPSC326
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       One of the main issues I ran into during this hw occurred initially when testing p8.mypl. It wasn't saving the initial values and only the second values were printing correctly. This problem stumped me so I ended up adding debuggers in my Interpreter and tracking down this issue. What I ended up realizing was that the IDRValue function we made before was just checking the first part of the path which was all we needed for HW6. This meant I had to go through and add the iteration through the rest of the node. Bowers notes on his website also helped me realize this as well as other hints I needed to finish the project.

       The process for this homework was interesting because I needed to grab information from multiple sources to complete it. One place was bowers notes which I didn't know contained vital information for the run function in the hw which was causing me a lot of trouble to start with. I also learned there were little areas that still needed changes for everything to work properly, including a small change to my TypeChecker. In the future I need to check all available resources first before starting the assignment.

--Proof the code works on tests-------------------------------------

```
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p5.mypl
test 1: pass
test 2: pass
test 3: pass
test 4: pass
test 5: pass
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p6.mypl
second elif case
oops!
should be 0: 0
should be 1 2 3 4 5 6: 1 2 3 4 5 6
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p7.mypl
test 1: pass
test 2: pass
test 3: pass
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p8.mypl
test 1: pass
test 2: pass
test 3: 5 % 0, should result in a runtime error:
Runtime error: Can't mod by 0 at line 33 column 14
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa %
```

```
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % javac HW6.java -Xlint
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p8.mypl
test 1: pass
test 2: pass
test 3: 5 % 0, should result in a runtime error:
Runtime error: Can't mod by 0 at line 33 column 14
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % javac HW6.java -Xlint
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p1.mypl
Hello World!
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p2.mypl
Should print 5: 5
Should print -3: -3
Should print 3.14: 3.14
Should print -3.14: -3.14
Should print 5: 5
Should print 3.14: 3.14
Should print 3: 3
Should print abcde: abcde
Should print abc: abc
Should print a: a
Should print b: b
Should print c: c
Should result in a runtime error:

Runtime error: index is out of bounds at line 57 column 1
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p3.mypl
x is: 0
y is: ab
z is: 3.14
3 + 4 is: 7
3 - 4 is: -1
5 / 2 is: 2
5 % 2 is: 1
3.03 + 0.11159 is: 3.14159
3.0 - 4.0 is: -1.0
5.0 / 2.0 is: 2.5
Enter a string: Hi
You entered: Hi

Runtime error: nil value at line 53 column 12
Cartermooring@Carters-MacBook-Air hw6-CarterKekoa % java HW6 p4.mypl
should be 6: 6
should be 6: 6
should be 6: 6
should be 6: 6
should be 6: 6
should be 6: 6
should be 6: 6
should be 6: 6
should be 6.0: 6.0
should be 6.0: 6.0
should be 6.0: 6.0
should be 6.0: 6.0
should be 6.0: 6.0
should be 6.0: 6.0
should be 6.0: 6.0
should be 6.0: 6.0
```

```
Cartermooring@Carters-MacBook-Air hw7-CarterKekoa % java HW7 p8.mypl
t1.x should be 0: 0
t1.y should be 1: 1
t1.x should now be 5: 5
t1.y should now be 6: 6
Cartermooring@Carters-MacBook-Air hw7-CarterKekoa % java HW7 p9.mypl
should print 0: 0
should print 1: 1
should print 0: 0
should print 2: 2
should print 0: 0
should print 3: 3
should print 5: 5
should print 3: 3
Cartermooring@Carters-MacBook-Air hw7-CarterKekoa % java HW7 p10.mypl
[10, 20, 30, 40, 50]
Cartermooring@Carters-MacBook-Air hw7-CarterKekoa % java HW7 p11.mypl
in f1
f1(3, 4) should be 7: 7
in f2, x = ab
in f3, after f2, x = abab
f3(ab) should be abab: abab
Cartermooring@Carters-MacBook-Air hw7-CarterKekoa % java HW7 p12.mypl
fac(30) => 1409286144
Cartermooring@Carters-MacBook-Air hw7-CarterKekoa % java HW7 p13.mypl
fib(0) = 0
fib(1) = 1
fib(2) = 1
fib(3) = 2
fib(4) = 3
fib(5) = 5
fib(6) = 8
fib(7) = 13
fib(8) = 21
fib(9) = 34
fib(10) = 55
fib(11) = 89
fib(12) = 144
fib(13) = 233
fib(14) = 377
fib(15) = 610
fib(16) = 987
fib(17) = 1597
```

fib(18) = 2584
Cartermooring@Carters-MacBook-Air hw7-CarterKekoa % java HW7 p14.mypl
Tree Values: 1 2 5 7 10 12 13 14 15
Tree Height: 5

---My Test File--
```
#check the 'not' operator
var x := true
print("test 1: ")
set x := not x
if x = false then
   print("pass \n")
else
   print("fail \n")
end

#operator tests and boolean tests
var y := not x
print("test 2: ")
if y = true then
   var a := 0
   var b := 5
   var c := 60
   if a <= b then
      set a := c / b
      set c := c / (b * 2)
      print("pass \n")
   else
      print("fail \n")
   end
else
   print("fail \n")
end

#make sure cant mod by 0 case
print("test 3: 5 % 0, should result in a runtime error: ")
print(itos(5 % 0))
```