

# SI 413 Fall 2021: Homework 6

Due Tuesday, October 10

Your name:

Citations and collaborators:

Comments, suggestions, or questions for your instructor:

Fill out the first row of the table on a 0-5 scale before turning in.

This rubric is also available on the website under “Admin”:

- **5:** Solution is completely correct, concisely presented, and neatly written.
- **4:** The solution is mostly correct, but one or two minor details were missed, or the presentation could be better.
- **3:** The main idea is correct, but there are some significant mistakes. The presentation is somewhat sloppy or confused.
- **2:** A complete effort was made, but the result is mostly incorrect.
- **1:** The beginning of an attempt was made, but the work is clearly incomplete.
- **0:** Not submitted.

Problem	1	2	3	Total
Self-assessment				
Final assessment				

# 1 Draw an AST

Here is a program written in Python. Draw its AST.

```
x = 10
while x > 0:
    print(x)
    x = x - 3
print("done")
```

## 2 Type checking

The following C++ program has a type error that a compiler like gcc or clang would recognize.

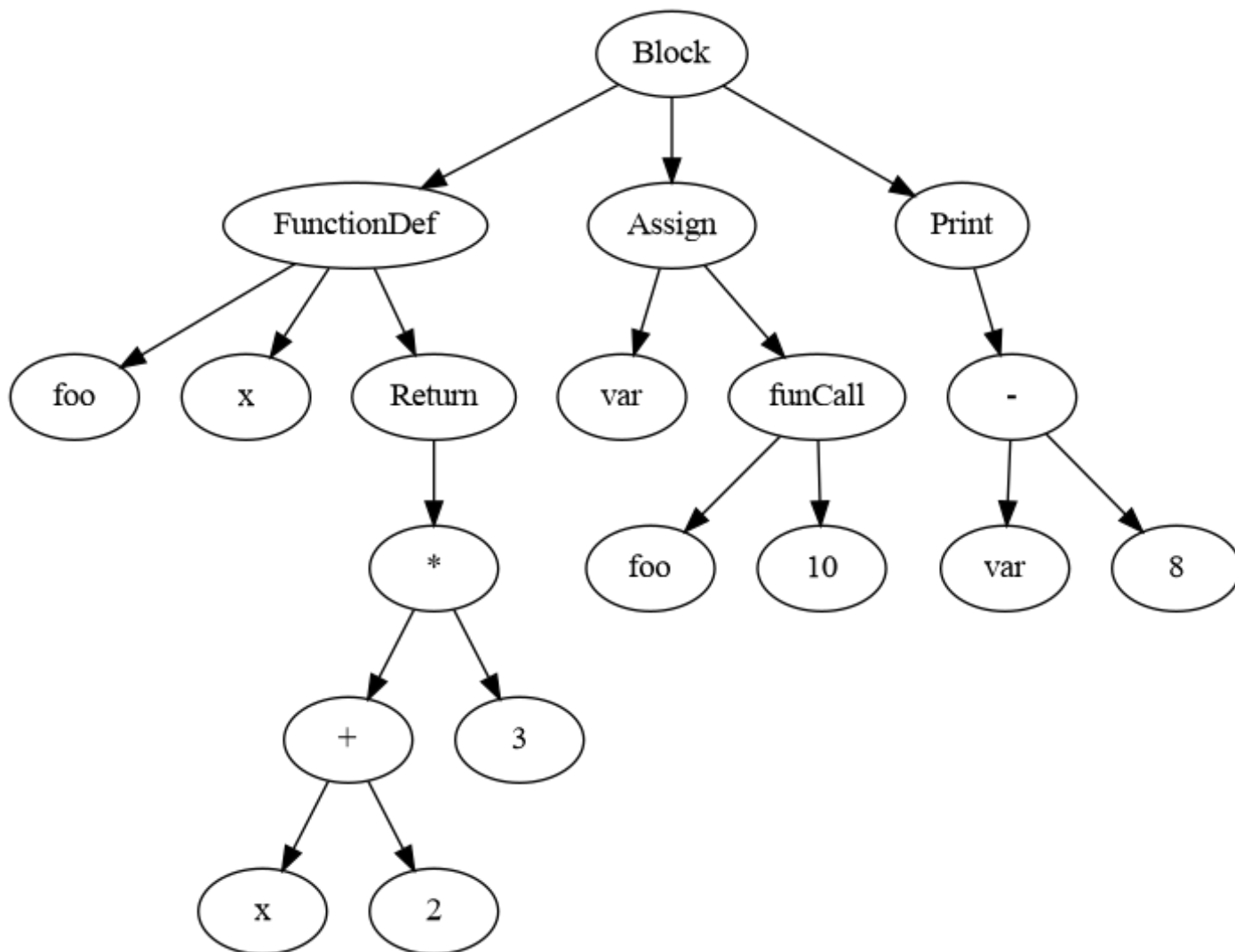
```
int main() {
    int bert = 100 % 3;;
    string ernie = "howdy";
    while (bert > 10) {
        bert = bert - 7;
        ernie = ernie + bert;
    }
    return 0;
}
```

First **draw the AST** for this program.

Then indicate clearly with a box or arrows **a single node of the AST** where the type error is identified during compilation.

### 3 Undraw an AST

Write a program in the language of your choosing that would generate the following AST:



(Be sure to specify which language you have chosen!)