COMP 587
Spring 2020

Grammar-Based Testing

1.a) Define a grammar which generates binary trees.

1.b.) Write a random generator of binary trees, according to the grammar above. To help improve output diversity, both a minimum and maximum depth are used.

```
public static Node genNode(int minDepth, int maxDepth) {
```

2.) Define a grammar which is suitable for generating tests for the following API. As a hint, you should have one production rule for `Foo`, and another production rule for `Bar`. You can assume you have a production rule `str` available, which generates strings.

```
public class Foo {
  public Foo(String s) { ... }
  public Bar toBar(int i) { ... }
}

public class Bar {
  // constructor omitted
  public Foo getFoo() { ... }
  public Bar withFoo(Foo f) { ... }
  public Bar withBar(Bar b) { ... }
}
```