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**Subject :** BBM 203 Software Laboratory Assignment 4

**Problem Definition:** In this assignment, we are expected to implement a basic BNF tree structure consisting of a set of terminal symbols, a set of non-terminal symbols, a set of production rules. While doing this, we are asked to set up a tree with 4 different struct structures and print the resulting tree.

**Solution:** I first read the files containing the terminal symbols that I would need while printing the tree structure and created separate arrays for all of them. I created 4 different structs because our BNF tree can have 3,2,1 or 0 children. Then, I created void pointer root. I know that the first element of the tree is cond, so I sent root and cond to the createNode function. Regardless of the random number, because I know that cond has 3 children, I created a temp with three children. Then I called the createNode function again to create the first, second and third children of the root. The createNode function determines how many children temp is based on the data sent as parameters and the number on the dice. And the createNode function calls itself again to create the children of temp. So our BNF tree was created. Then I created the printtree function to print our tree. According to the data in the countChild (holds the number of children of each tree I create in the createNode function) array, I look at all the children starting from the root children. If I come to "childless" I call the printChildless function. In the printChildless function, I access the arrays of my terminal variables that I created before and print a random element.