Compilers Homework-5 Q3

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a. The class hierarchy for both strategies is as follows:

```
                          ASTnode
            ┌────────────────┼────────────────┐
            ▼                ▼                 ▼
     BinaryASTnode     TernaryASTnode     IntLitASTnode


                         ASTvisitor
            ┌────────────────┼────────────────┐
            ▼                ▼                 ▼
      PreFixVisitor    EvaluationVisitor   PostFixVisitor
```
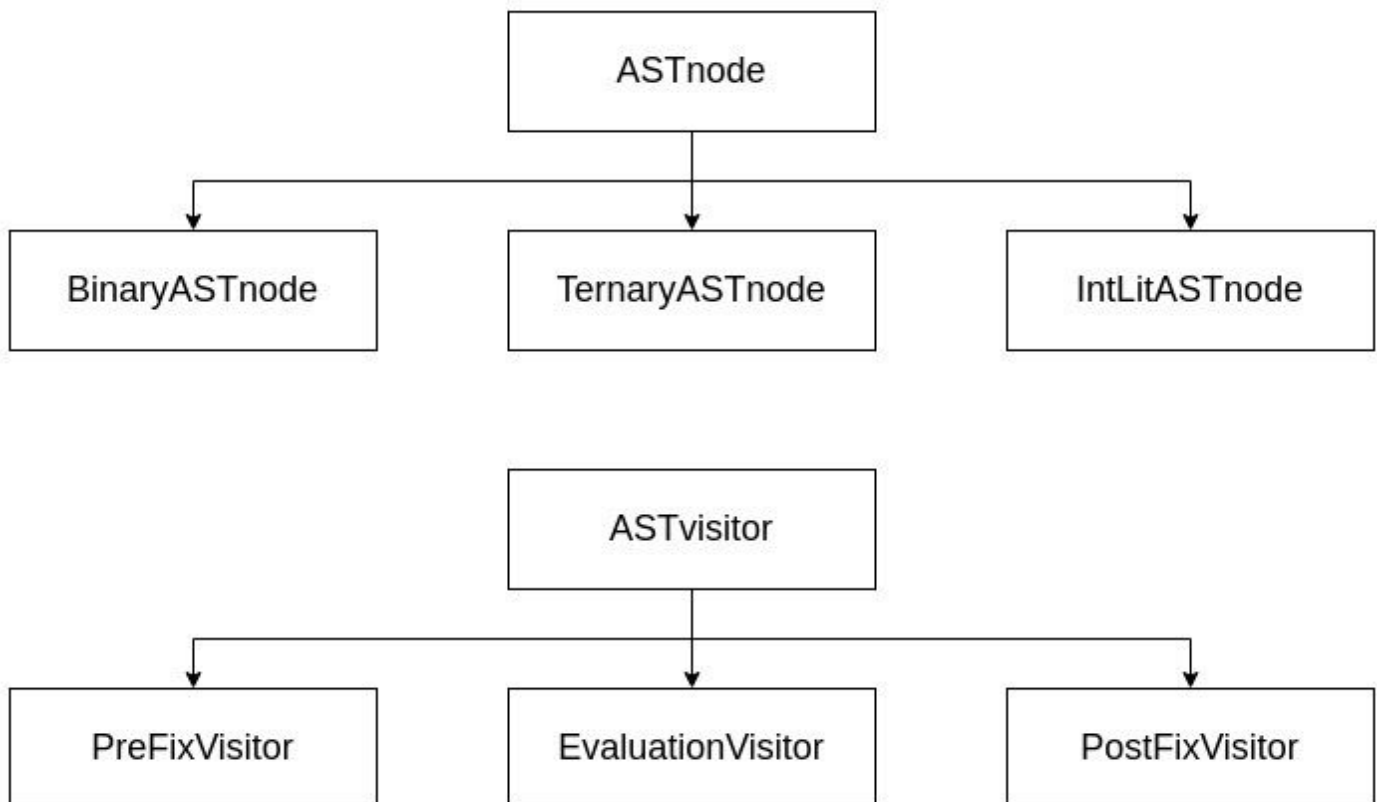
b. Code completed for prefix, postfix and evaluation.
c. Code completed for prefix, postfix and evaluation.
d. The main advantages of using the Visitor Design Pattern is that the code can be designed with modularity in mind. Each type of traversal can be written as a separate visitor of the tree generated. Therefore, unlike the naive approach, with the Visitor Design Pattern, we need not change the definition of the base class and all subsequent derived classes in order to add a single type of traversal of the tree. Each new traversal can be programmed as a separate visitor to the tree which can be written as a separate file and can derive from the base class for visitor.