Input formula is converted to NNF format and then Tseitin transformation is performed to convert it into equisatisfiable formula in CNF format.

The SAT Solver is built using DPLL algorithm which takes CNF formula as input. The algorithm calls BCP for identifying unit clauses and performs unit propagation. PLP is called to identify pure literals and it further simplifies the formula. The code is maintaining an assignment map which holds the truth value assigned for each variable in the formula. Algorithms are given below.

```
bool DPLL(CNF formula)
{
F1 = BCP(formula);
F1 = simplify(F1);
if (F1 is empty) return true;
if (F1 contains empty clause) return false
F2 = PLP(F1);
F2 = simplify(F2);
if (F2 is empty) return true;
if (F2 contains empty clause) return false
ch = chooseVariable();
return DPLL(F2, A{ch I- True) or DPLL(F2, A{ch I- False);
}

BCP(CNF formula)
{
For each clause C in formula:
  If C is unit clause containing one literal:
    Add the variable to assignment map with appropriate value
    For each clause in formula:
      If clause contains unit literal: Remove the clause from formula
      If clause contains ~literal: Remove the literal from the clause
    BCP(formula);

Return modified formula;
}

PLP(CNF formula)
{
pureLiterals = [ ]
for each variable v in formula:
  if v occurs only positively:
     Add v to assignment map with value True
     pureLiterals.append(v)
  if v occurs only negatively:
     Add v to assignment map with value False
     pureLiterals.append(v)

for each variable v in pureLiterals:
   for each clause C in formula:
     if C contains v :
          remove the clause from the formula

Return simplified formula;
}


simplify(CNF formula)
{
If(assignment map is not empty):
   For each (v,u) in assignment map:
      For each clause C in formula:
         If (v appears positively in C and u is true) or ( v appears negatively in C and u is false)
            Remove C from formula
         If (v appears positively in C and u is false) or ( v appears negatively in C and u is true)
            Remove literal from the clause C

Return simplified formula;
}
```