

Tiny CFG

- **Terminals**

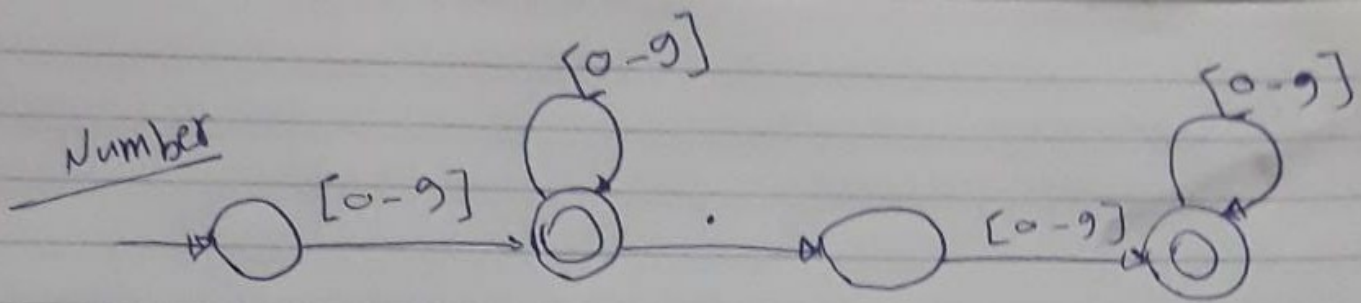
int, float, string, read, write, repeat, until, if, elseif, else, then, return, endl, end, semicolon, comma, l_bracket, r_bracket, equalOp, lessthanOp, greaterthanOp, notequalOp, plusOp, minusOp, multiplyOp, divideOp, and, or, idenifier, assignOp, open_Curlybrac, close_Curlybrac, number, stringVal, greater_or_equal, less_or_equal.

- **Production Rules**

1. Program \rightarrow Functions Main_function
2. Functions \rightarrow Function Functions $| \epsilon$
3. Function \rightarrow Function_Header Function_Body
4. Main_function \rightarrow int main () Function_Body
5. Function_Header \rightarrow Datatype identifier (ParameterList)
6. Function_Body \rightarrow {Statements Return_Statement}
7. ParameterList \rightarrow Parameters $| \epsilon$
8. **Parameters \rightarrow Parameters, Datatype identifier $|$ Datatype identifier**
 1. Parameters \rightarrow Datatype identifier Parameter
 2. Parameter \rightarrow , Datatype identifier Parameter $| \epsilon$
9. **Statements \rightarrow Statements ;Statement $|$ Statement**
 1. Statements \rightarrow Statement State
 2. State \rightarrow ;Statement State $| \epsilon$
10. Statement \rightarrow Repeat_Statement $|$ If_Statement $|$ Write_Statement $|$ Read_Statement $|$ Declaration_Statement $|$ Assignment_Statement $|$ Function_Call $| \epsilon$
11. Write_term \rightarrow Expression $|$ endl
12. Repeat_Statement \rightarrow repeat Statements until Condition_Statement
13. Else_Statement \rightarrow else Statements end
14. ElseIf_Statement \rightarrow elseif Condition_Statement then Statements ElseOrElseif_Statement
15. ElseOrElseif_Statement \rightarrow ElseIf_Statement $|$ Else_Statement $| \epsilon$
16. If_Statement \rightarrow if Condition_Statement then Statements ElseOrElseif_Statement
17. Condition_Statement \rightarrow Condition Boolean_Operator Condition_Statement $|$ Condition

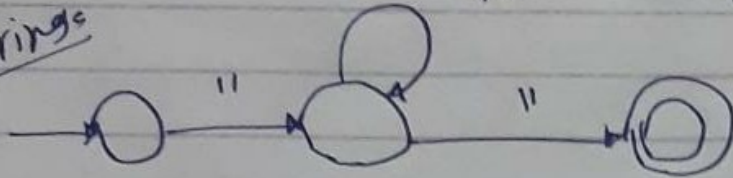
- 18. Boolean_Operator \rightarrow && | ||
- 19. Condition \rightarrow identifier Condition_Operator Term
- 20. Condition_Operator \rightarrow > | < | = | <> | <= | >=
- 21. Return_Statement \rightarrow return Expression;
- 22. Read_Statement \rightarrow read identifier
- 23. Write_Statement \rightarrow write write_term
- 24. Declaration_Statement \rightarrow Datatype Vars
- 25. **Vars \rightarrow Vars, VarDeclare | VarDeclare**
 - 1. Vars \rightarrow VarDeclare Variable
 - 2. Variable \rightarrow , VarDeclare Variable | ϵ
- 26. VarDeclare \rightarrow identifier | Assignment_Statement
- 27. Datatype \rightarrow int | float | string
- 28. Assignment_Statement \rightarrow identifier := Expression
- 29. Expression \rightarrow stringVal | Term | Equation
- 30. Equation \rightarrow (Equation) | Term Arithmetic_Operator Equation | Term
- 31. Arithmetic_Operator \rightarrow + | - | * | /
- 32. Term \rightarrow number | identifier | Function_Call
- 33. Function_Call \rightarrow identifier (Arguments)
- 34. **Arguments \rightarrow Arguments, identifier | identifier**
 - 1. Arguments \rightarrow identifier Arg
 - 2. Arg \rightarrow , identifier Arg | ϵ

Number

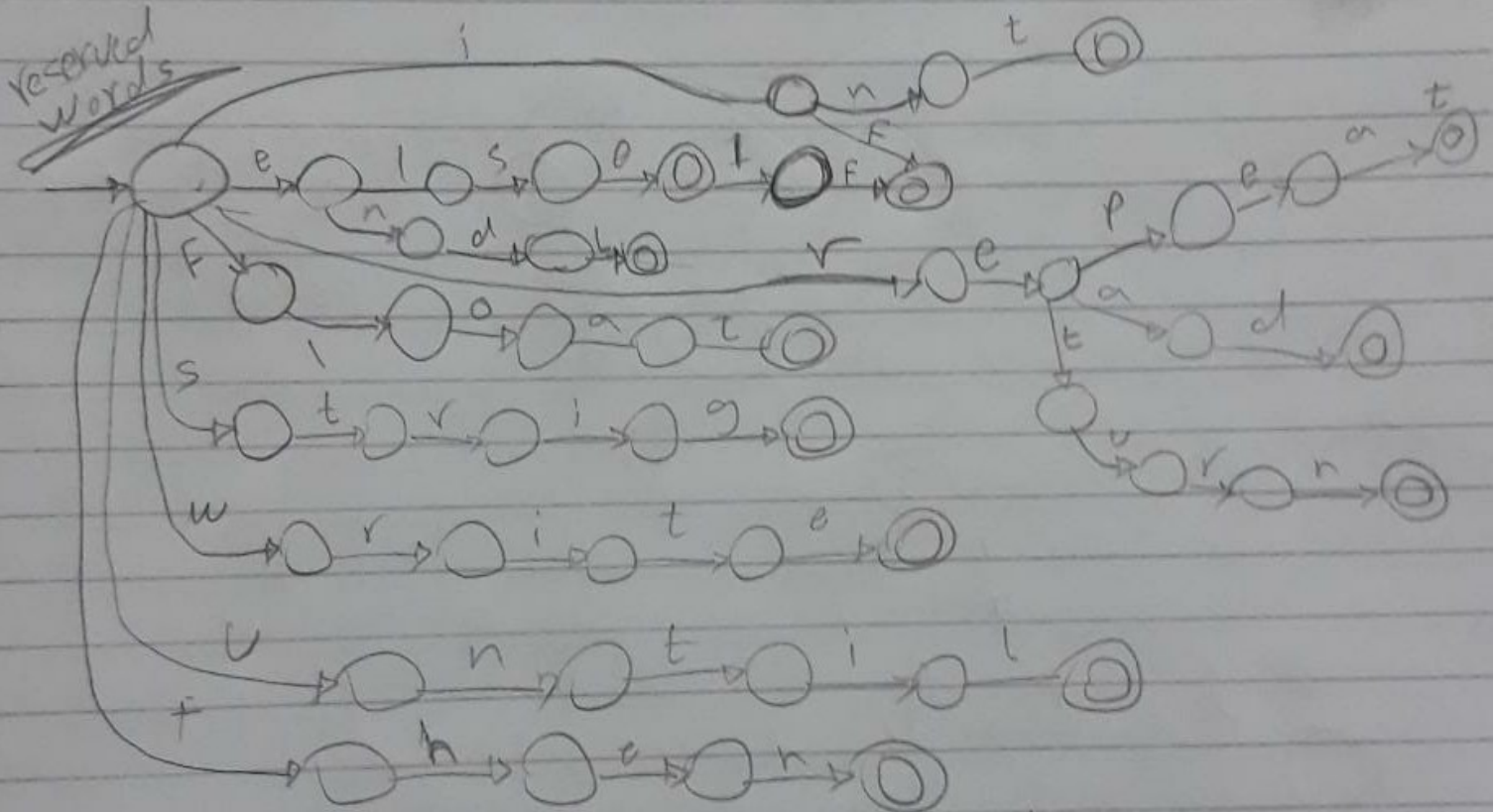


$[0-9] | [a-zA-Z] | \text{special characters}$

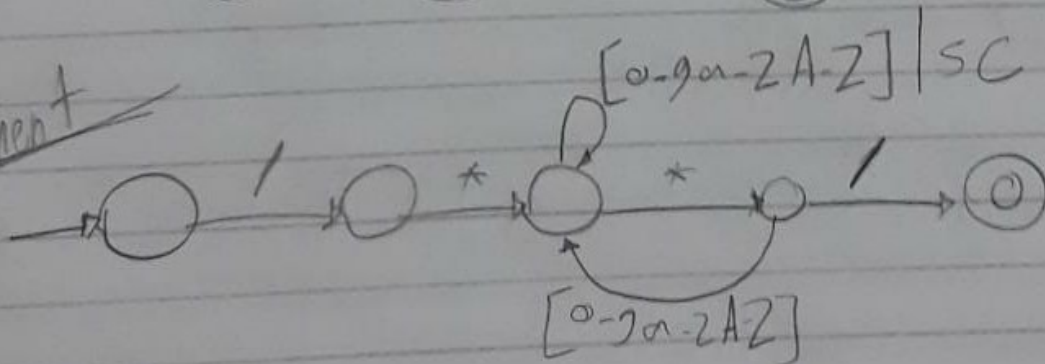
strings



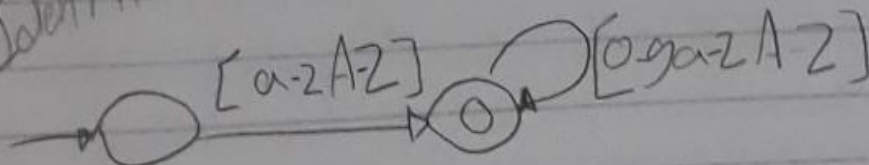
Reserved words



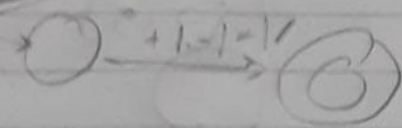
Comment



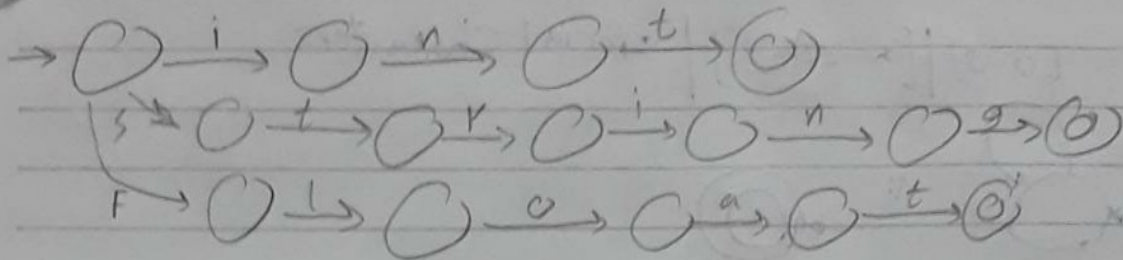
Identify


$$[0-2\alpha-2A-Z]$$

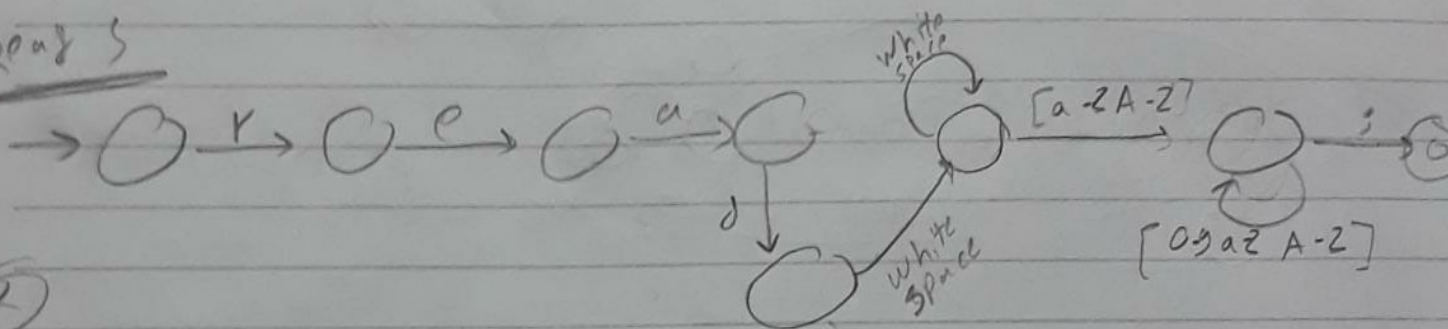
AO



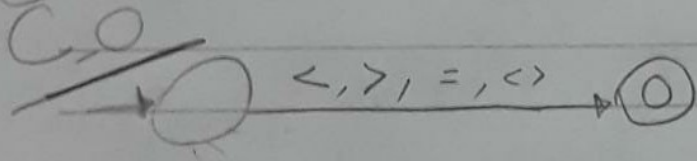
DT



Regex



17



18

