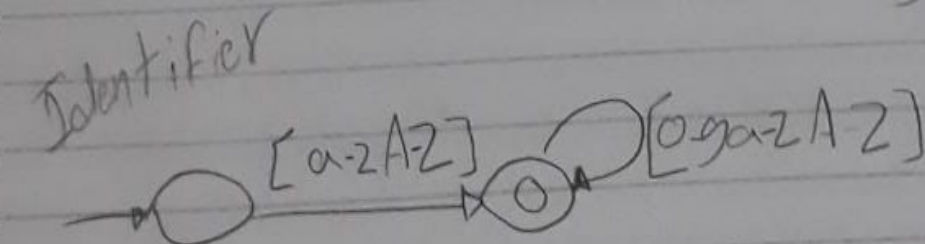
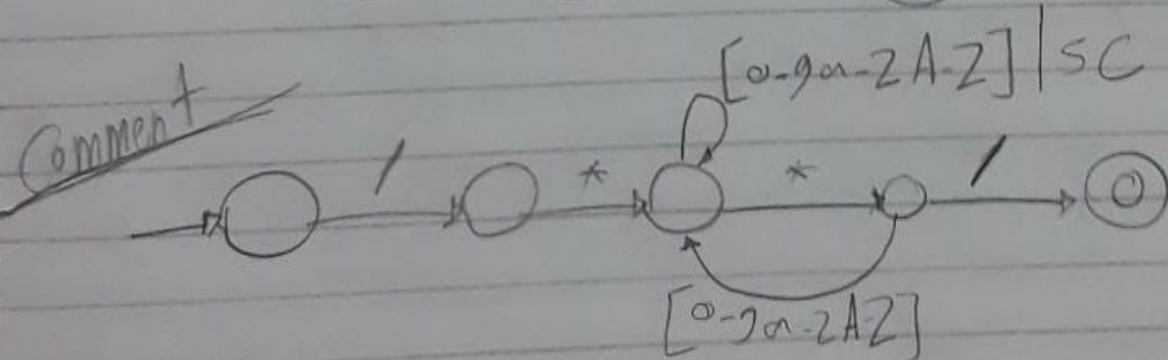
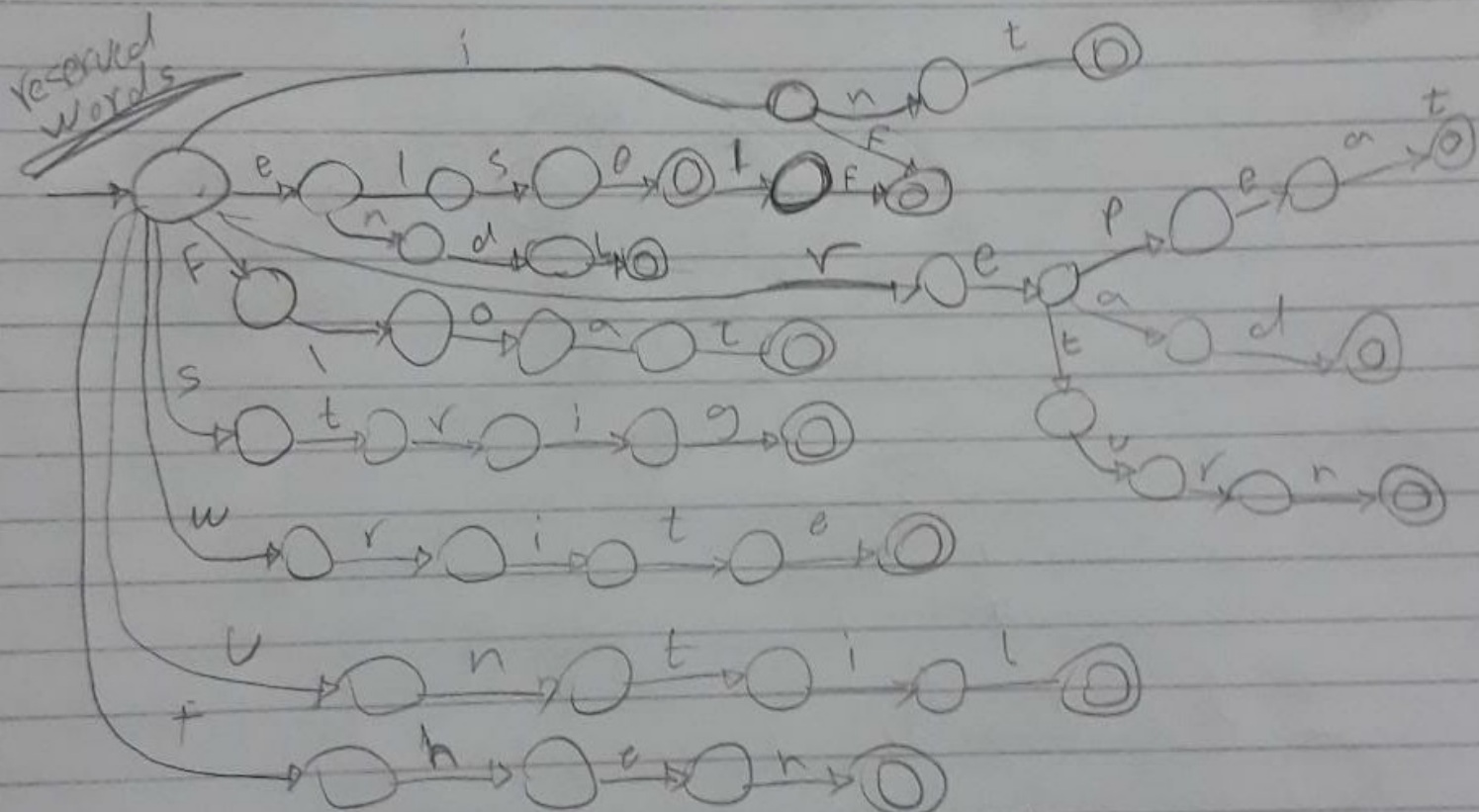
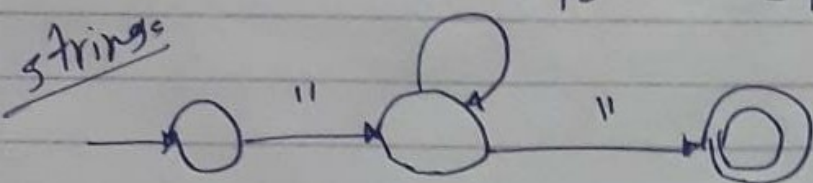
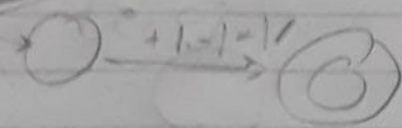


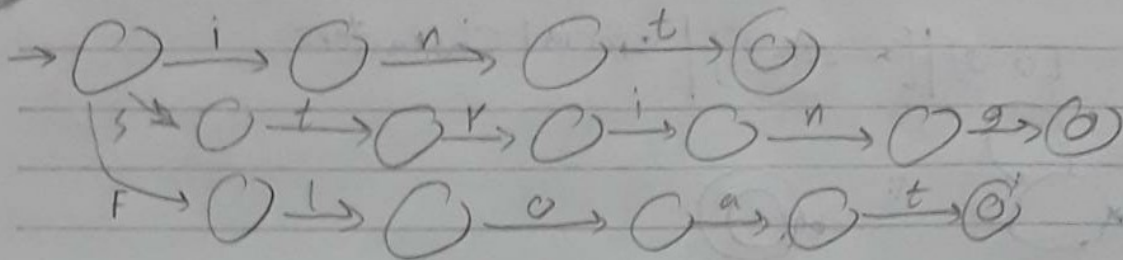
$[0-9] | [a-zA-Z] | \text{special characters}$



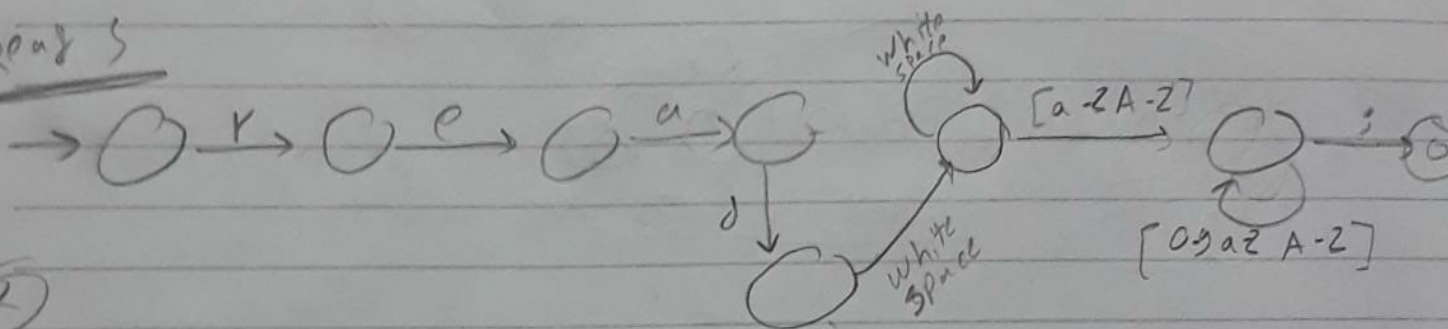
AO



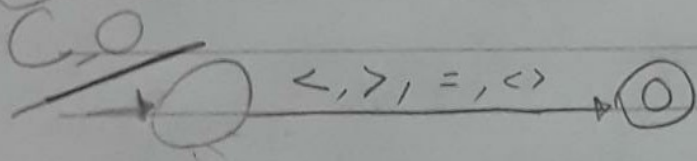
DT



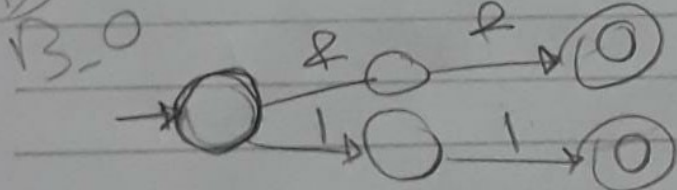
Regex



17



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# 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 |  $\epsilon$
- 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 |  $\epsilon$