Lab2: Implement scanner phase of compiler

Project Number: **5**
Project Members:

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Regular Definitions:

Keyword	"Which" | "which" | "Is" | "is" | "From" | "from" | "number" | "or" | "and" | "between" | "than"
Cmp	"bigger" | "greater" | "larger" | "smaller" | "less"
Digit	[0-9]
Qm	"?"
Dm	[\t\n]

Regular Expression and their respective DFA and ALGO:

RE:

Int	{Digit}+
Float	{Digit}+(\.{Digit}+)?(E[+\-]?{Digit}+)?
Space	{Dm}+

DFAs:

Float:-

A --Digit--> B (Digit self-loop) --.--> C --Digit--> D (Digit self-loop)

D --E--> E

B --e--> E

E --+/- --> F

E --Digit--> G

F --Digit--> G

G (Digit self-loop)

Int:-

H --Digit--> I (Digit self-loop)
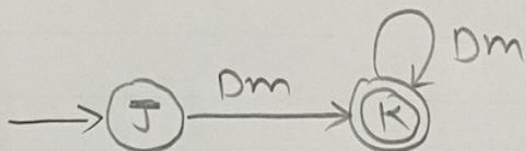
Space:-

J --Dm--> K (Dm self-loop)

* Final DFA *
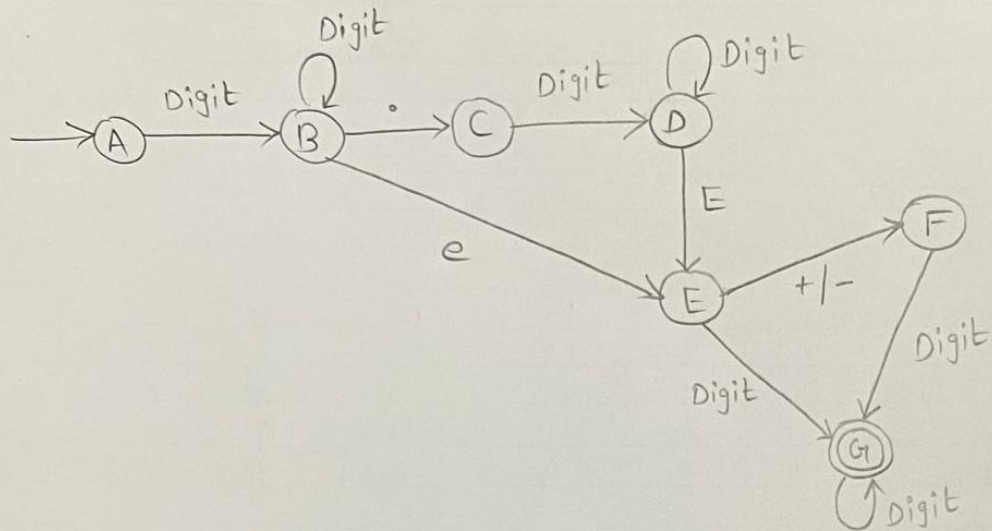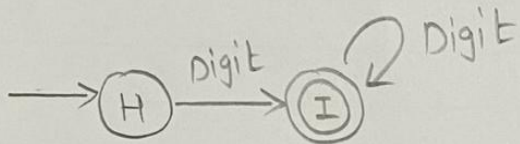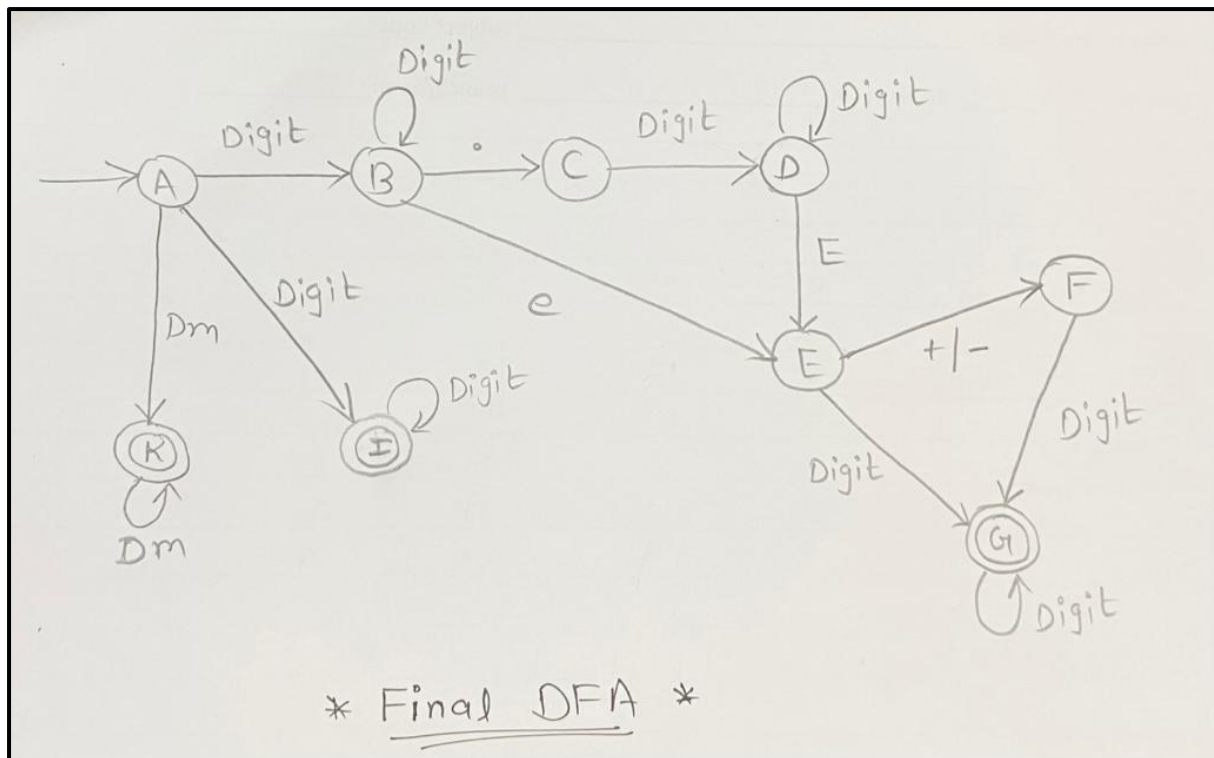
Algorithm:

state: =A: input (ch)
while not eof do

    if (state ==A)
        if(ch==Digit){ state: =B}
        else if(ch==Digit && eof){ state: =I}
        else if(ch==Dm){ state=K}
    else
        exit while;
    end if;

    if (state ==B)
        if(ch==Digit){ state: =B}
        else if(ch== '.'||ch== 'E'){ state: =C}
    else
        exit while;
    end if;

    if (state ==C)
        if(ch==Digit){ state: =D}

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                else
                        exit while;
                end if;

                if(state==D)
                        if(ch==Digit){ state: =D}
                        else if(ch=='E'){ state: =E}
                else
                        exit while;
                end if;

                if(state==E)
                        if(ch==Digit){ state: =G}
                        else if(ch== '+'||ch== '-'){ state: =F}
                else
                        exit while;
                end if;

                if(state==F)
                        if(ch==Digit){ state: =G}
                else
                        exit while;
                end if;

                if(state==G)
                        if(ch==Digit){ state: =G}
                else
                        exit while;
                end if;

                if(state==I)
                        if(ch==Digit){ state: =I}
                else
                        exit while;
                end if;

                if(state==K)
                        if(ch==Dm){ state: =K}
                        else
                        exit while;
                end if;
        exit while;
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if state=G then
        accept_Float;
else if state=I then
        accept_Int;
else if state=K then
        accept_Space;
end if;
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