Text

Description automatically generated

**Activity based**

**Project Report on**

**Artificial Intelligence**

**Lab CIE**

**Submitted to Vishwakarma University, Pune**

**Under the Initiative of**

**By**

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**Problem Statement:**

Generate Lexical and Semantic analyser for Protocol Specification Language using Flex and Bison

CODE:

Lexical:



Semantic:

%{

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

extern int yylex();

extern FILE\* yyin;

void yyerror(const char\* msg) {

// Do nothing for syntax errors

}

%}

%union {

int num;

char\* str;

}

%token <num> NUMBER

%token <str> IDENTIFIER

%token PROTOCOL REQUEST RESPONSE INT\_TYPE BOOL\_TYPE STRING\_TYPE OPEN\_BRACE CLOSE\_BRACE SEMICOLON OPEN\_PAREN CLOSE\_PAREN

%%

Protocol : PROTOCOL IDENTIFIER OPEN\_BRACE ProtocolBody CLOSE\_BRACE;

ProtocolBody : RequestResponseList;

RequestResponseList : RequestResponse | RequestResponseList RequestResponse;

RequestResponse : Request | Response;

Request : REQUEST IDENTIFIER OPEN\_BRACE RequestBody CLOSE\_BRACE SEMICOLON;

RequestBody : INT\_TYPE IDENTIFIER SEMICOLON STRING\_TYPE IDENTIFIER SEMICOLON;

Response : RESPONSE IDENTIFIER OPEN\_BRACE ResponseBody CLOSE\_BRACE SEMICOLON;

ResponseBody : BOOL\_TYPE IDENTIFIER SEMICOLON STRING\_TYPE IDENTIFIER SEMICOLON;

%%

int main(int argc, char\*\* argv) {

if (argc < 2) {

fprintf(stderr, "Usage: %s input\_file\n", argv[0]);

return 1;

}

FILE\* input = fopen(argv[1], "r");

if (!input) {

perror("fopen");

return 1;

}

yyin = input;

yyparse();

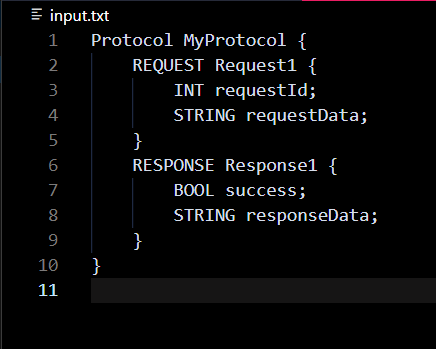
fclose(input);

printf("Lexical and Semantic Analysis completed, Result.txt file formed!");

return 0;

}

Input:



Output:

