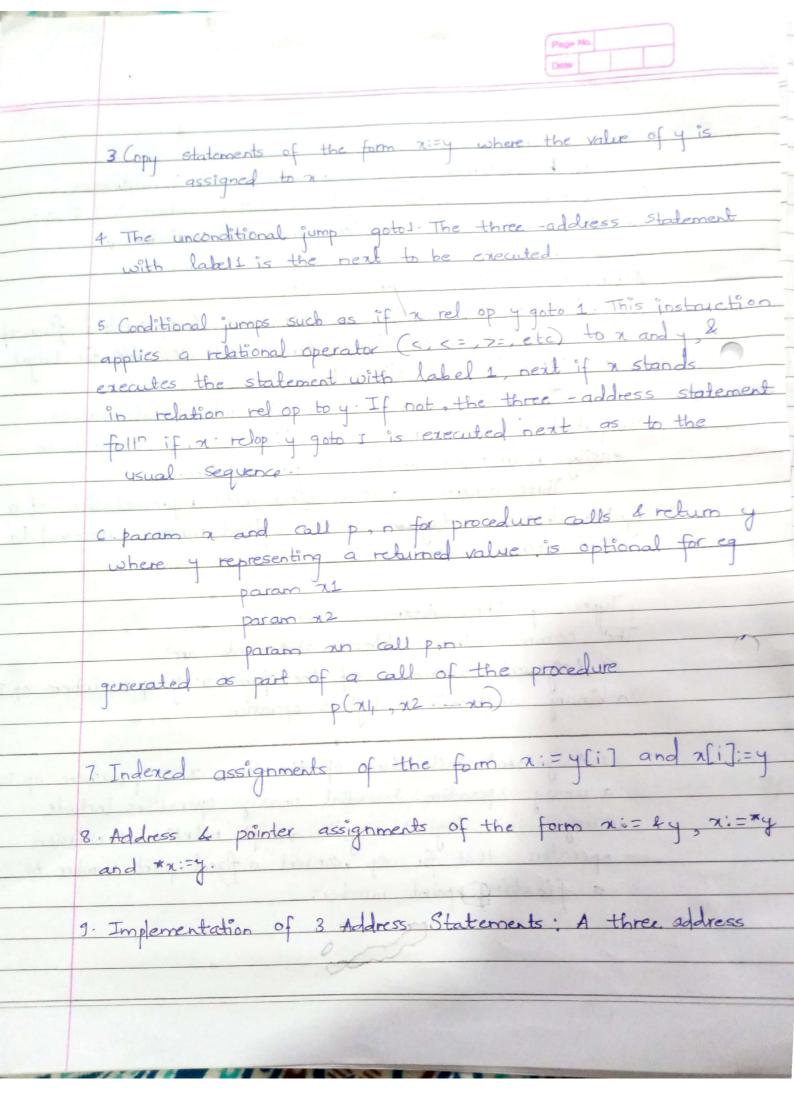
ASSIGNMENT NO: 5. Implement the front end of a compiler that generates the three address code for a simple language. Problem Stadement's Code for arithmetic expression. 2. Write a LEX and YACC program to generate Intermediate Code for Subset of C. Objective i · To understand the fourth phase of a compiler Intermediate code generation (ICG) · To learn and use tompiler writing tools. · Understand and learn how to write three address code for given Statement. Slw packages's J. Linux OS · YACC. Theory's In the analysis synthesis model of a compiler, the front end analyzes a source program and creates an intermediate representation, from which the back end generales target code. Ideally, details of the source language

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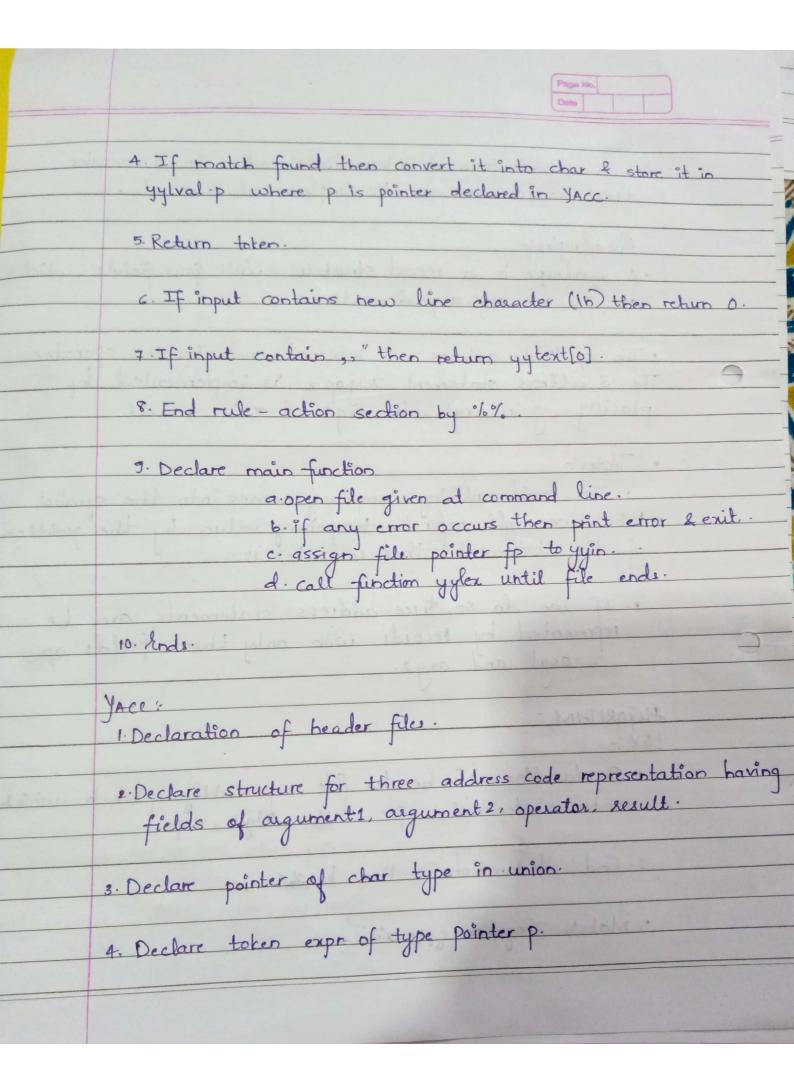
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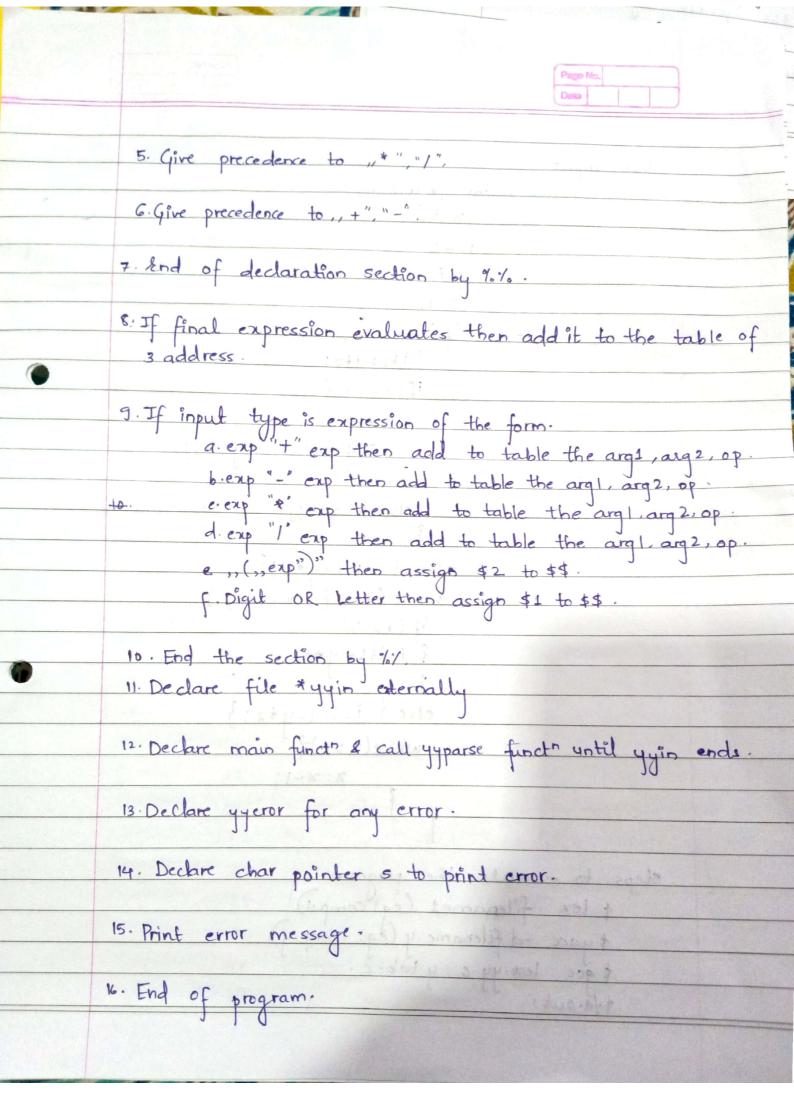
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	are confined to the front end, and details of the target machine to the back end. The first of the larger machine
No.	to the back end. The front end translates a source program into
	an intermediate representation from which the back end generates
	target code with a suitably defined intermediate representation,
	a compiler for language i and machine i can then be built by
	combining the front end for language i with the back end for
	combining the front end for language i with the back end for machine j. This approach to creating suite of compilers can be saved:
	can be saved:
	The state of the s
	Benefits of using Machine-independent Intermediate form are:
	1. Compiler for a different machine can be created by attacking
	1. Compiler for a different machine can be created by attacking a back end for the new machine to an existing front end.
Marine Property	A soli en la di la di sar can he applied to
11	2. A machine independent code optimizer can be applied to the intermediate representation.
	the Intermediate representation.
	Three ways of Intermediate representation:
	· Systax tree:
	· Post-fix Notation
	· Three address code.
	30 A 1 1
	The semantic rules for generating three-address code from common programming language constructs are similar to those for constructing syntan trees or for generating postfin
	common programming language constructs are similar to
	those for constructing syntan trees or for generating postfin
	notation.
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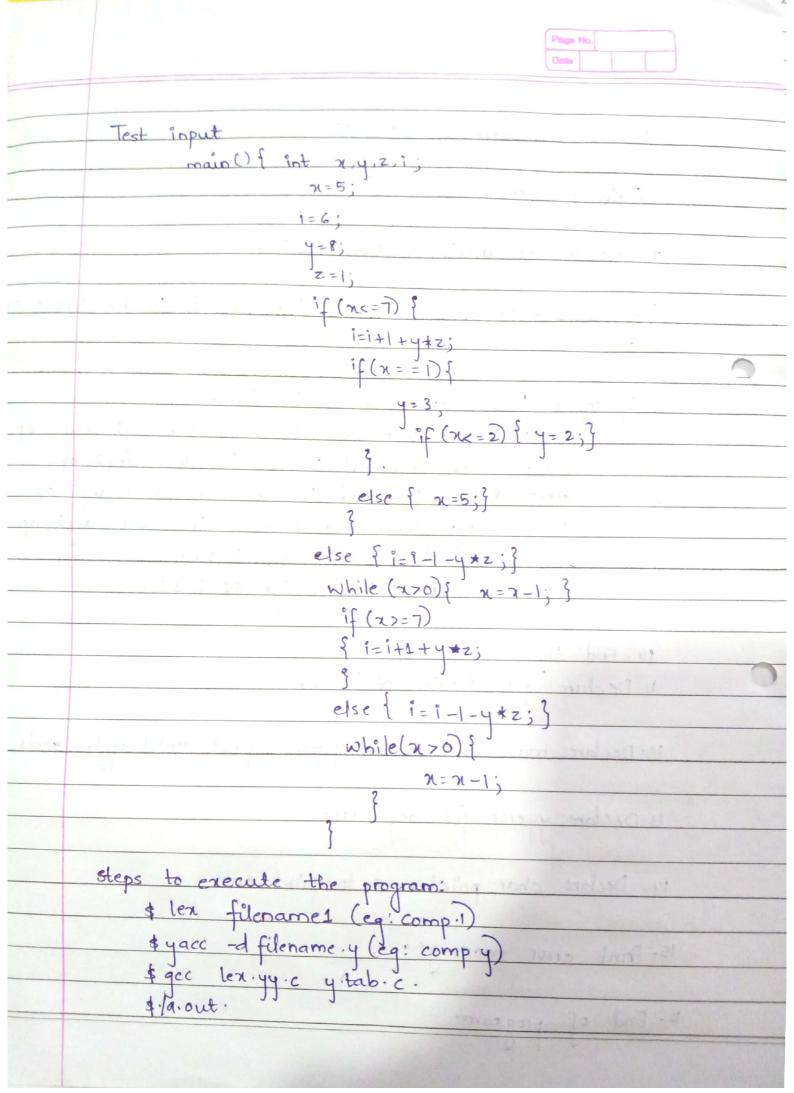
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	Three-address code:
	Fach statement generally consists of 3 addresses,
	2 for operands 41 for result. X:- Jop 2 where artistical
A	variables, constants or compiler generated variables.
	Advantages of three-address code
	Complicated anthmetic expressions a of nested flow-
	control statements mates three-address code desirable for target
	code gardadon a optimization
257,	The use of names for the intermediate values
	computed by a program allows three gadress comes
	easily rearranged-unlike post-fix notation.
	Three-address code is liberalized representation of a
	syntax tree or a dag in which explicit names correspond to
	the interior nodes of the graph.
	Types of Three-Address Statements:
	Il ree - modifies statements are
	1. Assignment statements of the form 2:= y op z, where or
	1. Assignment statements of the form 2:=4 op z, where or a binary arithmetic or logical operation.
The Han	2. Assignment instructions of the form n:=opy, where op
	a unary operation. Essential unary operations
x- 1 x	minus logical negation, Shift reduction, conversion
	operators that for eg convert a juice point
	a floating point number.
STALL STALL	



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	is an abstract form of intermediate code. In a compiler these statements can be implemented as records.
	Quadruples
A axid	· A quadruple is a record structure with four fields, which are Opl, op2, argl, arg2 & result.
	The op field contains an internal code for the operator. The 3 address statement 7=4 op z is implemented by placing y in argl, zin arg 2 & x in result.
	· Triples is
dixx x	1. To avoid entering temporary names into the symbol table, we might refer to temporary value by the position of the statement that computes it.
	e. If we do so, three-address statements can be represented by records with only three fields op, and and ange.
	ALGORITHM: LEX:-
von ovik	De claration of header file especially y tab. h whice contains declaration for Letter, Digit, expr.
	2. End declaration section by %%.
	3. Match regular expression.







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