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Question 1:

We need to add the following production rules:

typedef → TYPEDEF STRUCT ID ID SEMICOLON

type → ID

Question 2:

a. All those information in the table before should be stored, and we can simply add a flag variable “kind” to show whether something is a “typedef” name or other things like variables, functions or structs.

b. To process this:

1. If T is an ID, just look up its name in the global symbol table and if we can not find anything, or its “kind” is “typedef”, we can just pop up error messages;
2. Then we look up its name in the local scope(current scope in the symbol table) and if we find it out, then we just pop up error messages;
3. If there’s no error in the above two steps, we can add the name to the current scope and set its “kind” to “typedef”, and then we can use the value from its “type” field to fill the “type” field in the symbol table, otherwise, just use its type to fill the “type” field.

c. Just the same as those steps in the question b except that we should define it “kind” to variable/function/parameter instead of typedef.

Question 3:

Name	**Kind**	**Type**
MonthDayYear	struct	-
date	typedef	struct MonthDayYear
today	variable	struct MonthDayYear
dollars	typedef	int
salary	variable	int
moreDollars	typedef	int
md	variable	int
d	variable	int