

Forward Reference:-

- ① - A forward reference of a program entity is a reference to the entity in some statement of the program. that occurs before the statement containing the definition or declaration of the entity.
- ② - A forward reference causes problem in statement-by-statement processing of a program because the language processor would not know the attributes of the entity. when it encounters the forward reference.

example . forward reference in a source program
consider the following program:

```
Percent_Profit := (Profit * 100) / cost_price;  
.....  
long Profit;
```

- The reference to profit in the assignment statement constitutes a forward reference because the statement occurs before the statement long profit;
- in the program, if the program is processed on a statement-by-statement basis, the language processor would not know the type of variable profit while processing the assignment statement,
 - hence it would not be able to generate the correct code.

- The problem concerning statement-by-statement processing of a source program or ~~at~~ addressed by using a multi-pass organization of language processors.

- In this organization, the language processor splits the task of language processing into a sequence of stages.

- The problem caused by forward references is solved by analysing the program in one stage of the language processor & generating the target program in a later stage.

- The second problem arises because statement-by-statement analysis requires code for both the analysis & synthesis phases of a language processor to exist in memory at the same time.

- It is eliminated in the multi-pass organization because only the code of program required in one stage of translation would need to exist in memory at any time.