Assignment 3

Q. Write short notes on

1) Editors and Types of Editors

⇒ Editors or text editors are software programs that enable the user to create and edit text files.

- In the field of programming, the term editor usually refers to the source code editors that include many special features for writing and editing code.

- Features normally associated with text editors are moving the cursor, deleting, replacing, pasting, finding, saving, etc.

- **Types of Editors :-**

1) Line Editors

⇒ In this, you can only edit one line at time or an integral number of lines. You cannot have a free-flowing sequence of characters. It will take care of only one line.

- For e.g., Teleprinter, edlin, teco

2) Stream Editors

⇒ In this type of editors, the file is treated as continuous flow or sequence of characters instead of line numbers, which means have you can type paragraphs.

- For e.g., Sed Editor in UNIX

3) Screen Editors

⇒ In this type of editors, the user is able to cursor on the screen and can make a copy, cut, paste operation easily.

- It is very easy to use mouse pointer.
- For e.g., vi, emacs, Notepad.

4) Word Processor

⇒ Overcoming the limitation of screen editors, it allows one to use some format to insert images, files, videos, use font, size, style features.

- It majorly focuses on Natural language.

5) Structure Editor

⇒ Structure editor focuses on programming languages. It provides features to write and edit source code.

- For e.g., Netbeans IDE, gEdit

b) Backpatching in Intermediate Code Generation

⇒ - Backpatching is basically a process of fulfilling unspecified information. This information is of labels.

- It basically uses the appropriate semantic actions during the process of code generation.

- It may indicate the address of the label in goto statements while producing TACs for the given expressions.

- Here basically two passes are used because assigning the position of these label statements in one pass in quite challenging.

- It car leave these addresses unidentified in the first pass and then populate them in the second round. Backpatching is the process of filling up gaps in incomplete transformations and information.

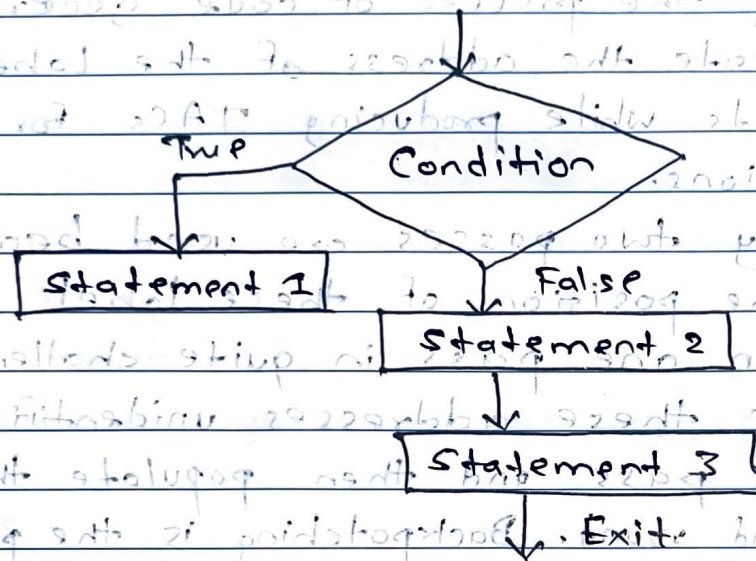- Backpatching is mainly used for two purposes:

1) Boolean expression

⇒ Boolean expressions are statements whose results can be either true or false.

- A boolean expression which is named for mathematician George Boole is an expression that evaluates to either true or false.

- Let's look at some common language examples:
  - My favorite color is blue ⟶ true
  - I am afraid of mathematics ⟶ false.

2) Flow of control statements

⇒ The flow of control statements needs to be controlled during the execution of statements in a program.

- For e.g,

3) Labels and Gotos:

⇒ The most elementary programming language construct for changing the flow of control in a program is a label and goto.

- When a compiler encounters a statement like goto L, it must check that there is exactly one statement with label L in the scope of this goto statements.