SOFTWARE ENGINEERING-I

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Week 12 Component/Level

-Graphical Design Notation.

-Tabular Design Notation.

-Program Design Lang.

Component/Level

- A component is a modular, portable, replaceable, and reusable set of well-defined functionality that encapsulates its implementation and exporting it as a higher-level interface.

- A component is a software object, intended to interact with other components, encapsulating certain functionality or a set of functionalities.

- It has an obviously defined interface and conforms to a recommended behavior common to all components within an architecture.

Graphical Design Notation

- There are two graphical design notations to be used flow chart and box diagram that readily depict procedural details.

- The flowchart is the most widely used graphical representation for procedural design.

- The flowchart is quite simple pictorial.

- A box used to indicate a processing step. A diamond represents a logical condition and arrows show the flow of control.
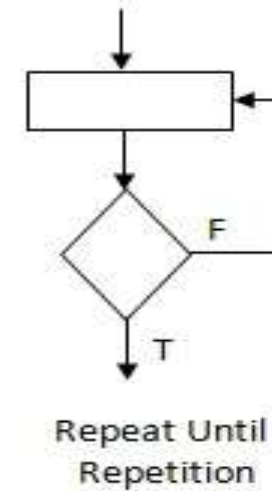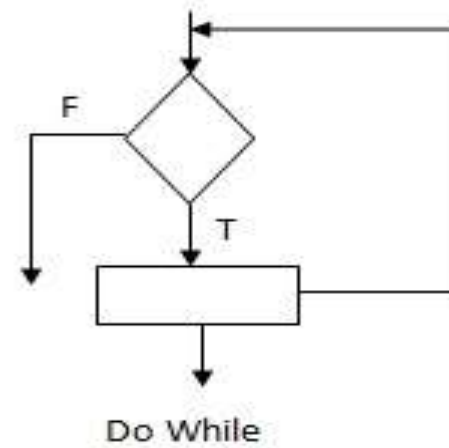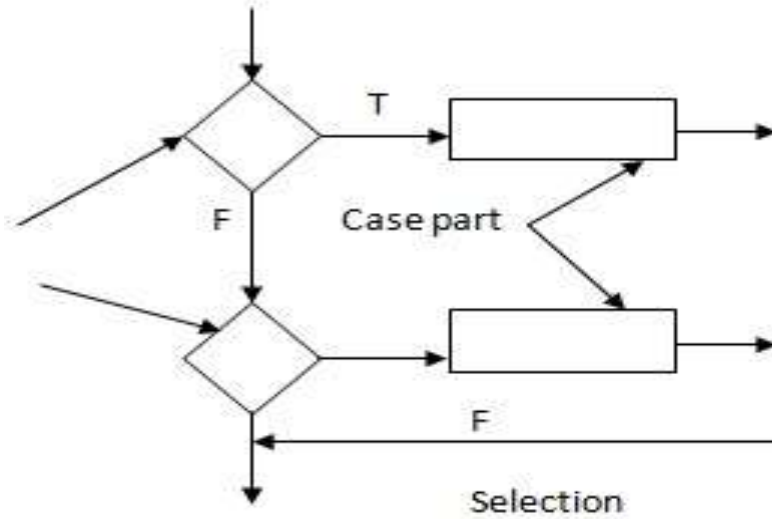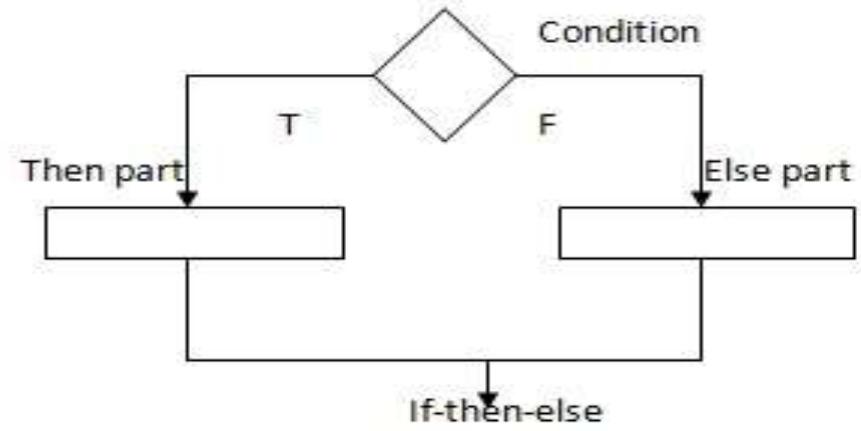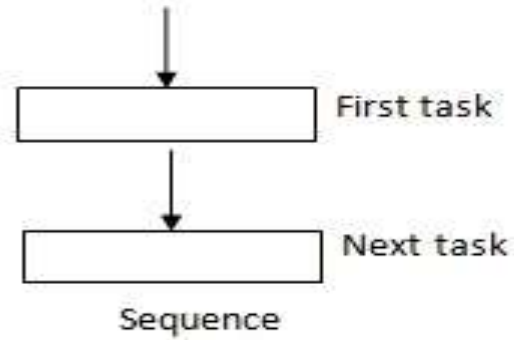
It show various flowchart constructs. Sequence is represented as two processing boxes connected by a line (arrow) of control.

Tabular Design Notation

- In many software applications, a module may be required to evaluate a complex combination of conditions and select appropriate actions based on these conditions.

- Decision tables provide a notation that translates actions and conditions (described in a processing narrative) into a tabular form.

		Rules								
Conditions	1	2	3	4						n
Condition #1	✔			✔	✔					
Condition #2		✔		✔						
Condition #3			✔		✔					
Actions										
Action #1	✔			✔	✔					
Action #2		✔		✔						
Action #3			✔							
Action #4			✔	✔	✔					
Action #5	✔	✔			✔					

Continue…

The following steps are applied to develop a decision table:
1. List all actions that can be associated with a specific procedure (or module).
2. List all conditions (or decisions made) during execution of the procedure.
3. Associate specific sets of conditions with specific actions, eliminating impossible combinations of conditions; alternatively, develop every possible permutation of conditions.
4. Define rules by indicating what action(s) occurs for a set of conditions.

Program Design Lang

- Program design language (PDL), also called structured English or pseudocode, is "a pidgin language in that it uses the vocabulary of one language (i.e., English) and the overall syntax of another (i.e., a structured programming language)" . PDL is used as a generic reference for a design language.

- Regardless of origin, a design language should have the following characteristics:
  • A fixed syntax of keywords that provide for all structured constructs, data declaration, and modularity characteristics.
  • A free syntax of natural language that describes processing features.
  • Data declaration facilities that should include both simple (scalar, array) and complex (linked list or tree) data structures.
  • Subprogram definition and calling techniques that support various modes of interface description.