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FIT1013 Digital Futures: IT for Business
Week 12 : Modularisation, Structure Charts

On completion of your study this week, you should aim to:

- Discuss program design approaches
- Design modules using structure charts

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Two Approaches to System Development

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- Traditional Approach
  - Also called structured system development
  - Structured analysis and design technique (SADT)
- Structured programming
  - Improves computer program quality
  - Allows other programmers to easily read and modify code
  - Each program module has one beginning and one ending

More details about Systems Development will be covered in **FIT2001**

Structured Analysis

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- Define what system needs to do (processing requirements)
- Define data system needs to store and use (data requirements)
- Define inputs and outputs
- Define how functions work together to accomplish tasks
- Data flow diagrams (DFD) and entity relationship diagrams (ERD) show results of structured analysis

Structured Design

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- Technique developed to provide design guidelines
  - What set of programs should be
  - What program should accomplish
  - How programs should be organized into a hierarchy
- Modules are shown with structure chart
- Main principle of program modules
  - Loosely coupled – module is independent of other modules
  - Highly cohesive – module has one clear task

The Structure Chart

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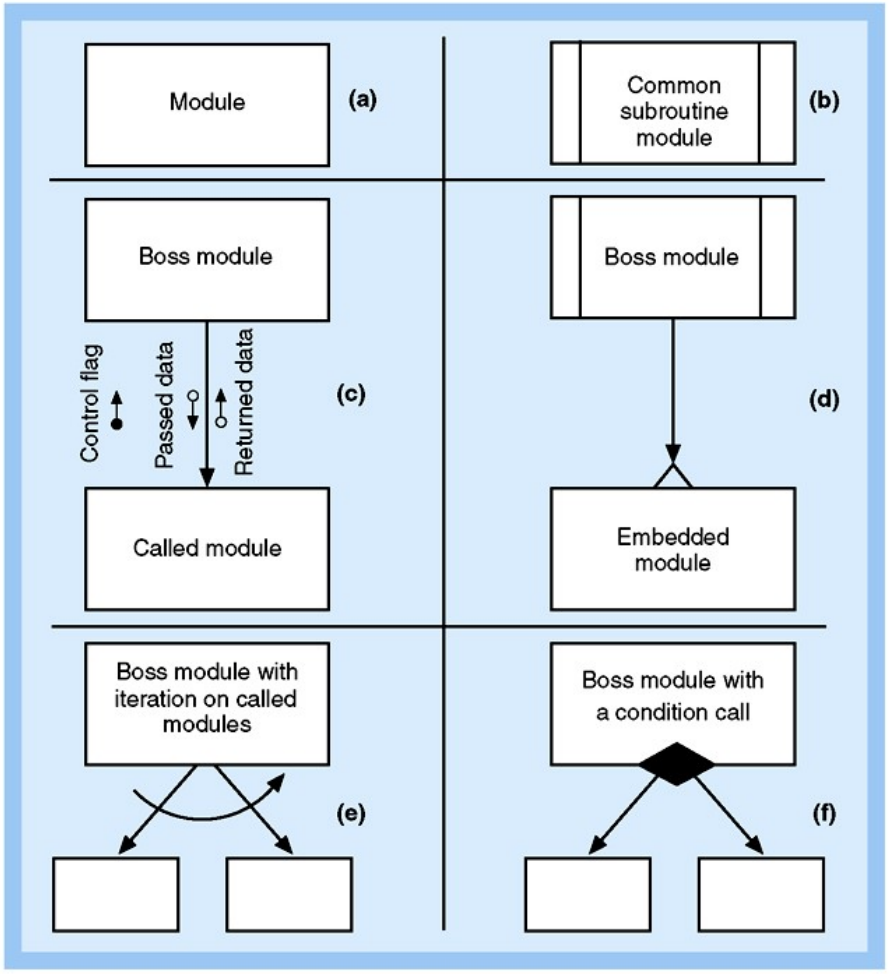
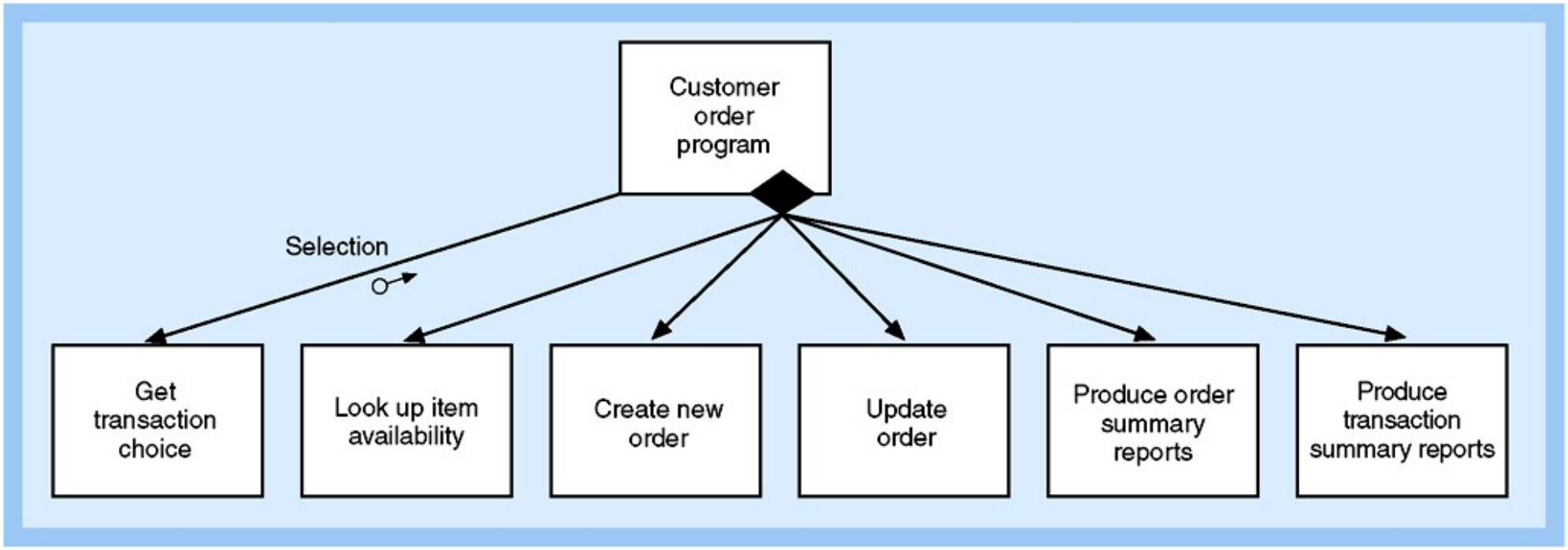
- Describes functions and sub functions of each part of system
- Shows relationships between modules of a computer program
- Simple and direct organization
  - Each module performs a specific function
  - Each layer in a program performs specific activities
- Chart is tree-like with root module and branches

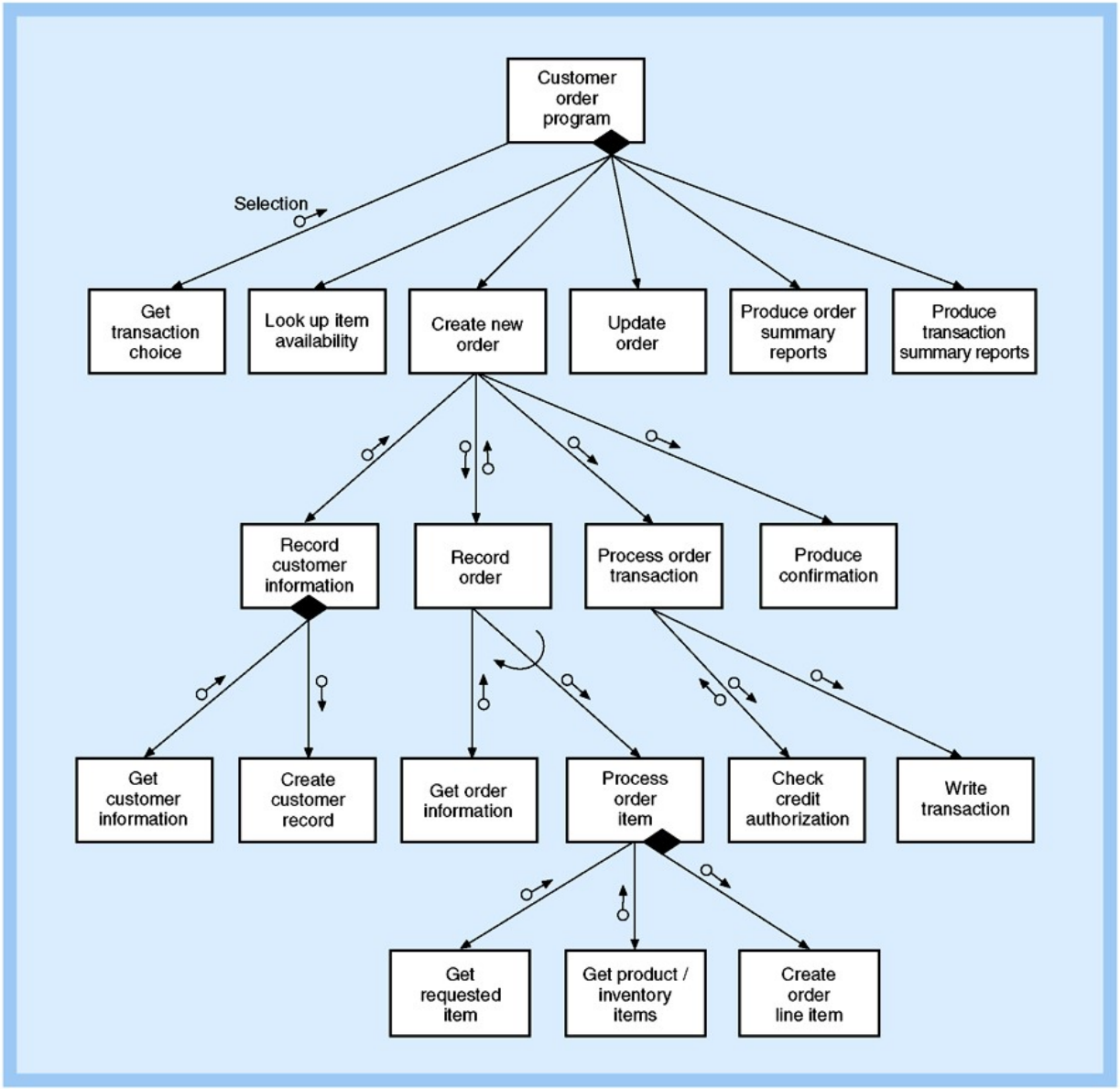
Structure Chart Symbols



High-level Structure Chart for the Customer Order Program



Structure Chart



Evaluating the Quality of a Structure Chart

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- Module coupling
  - Measure of how module is connected to other modules in program
  - Goal is to be loosely coupled
- Module cohesion
  - Measure of internal strength of module
  - Module performs one defined task
  - Goal is to be highly cohesive

Examples of Module Cohesion