Diploma Course in Software Engineering

Data Flow Diagrams (DFD)
Notations & Examples
Part II

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Lecture Schedule

● Note on Control Data
● DFD Examples
Control Data and Control Process

- Control data or triggers and represented by **dotted arrows**.

- A process handling just triggers can be considered a **control process**.

- A control process is represented by changing the boundary of the shape to a **dotted boundary**.

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1. Gane/Sarson

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DeMarco

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Yourdan & Coad
Control Data Scenario 1

• Consider a computer game that offers two different gaming modes, either to **play the game** (game mode) or to **administer the game** (administrative mode). Certain **game details** are interchanged amongst the two game modes directly. All signals and triggers are managed by a **control process**.

• Represent this scenario using the **DeMarco** notation.
Control Data Scenario 1

- **Context Diagram**

  Game System
Control Data Scenario 1

• Level 0

- Start Playing
- Change Mode
- Start Administering
- Change Mode

Game Mode

Game Details

Administrative Mode
Control Data Scenario 2

- A **surveillance system** is triggered by a **satellite or radar signal**. The satellite and radar send their **information** which is then stored in a **surveillance database**.

- Represent this system using the **DeMarco Notation**.

- Remember that no external entity can store data directly in a data store.
Control Data Scenario 2

- **Context Diagram**

```
<table>
<thead>
<tr>
<th>Satellite Trigger</th>
<th>Surveillance System</th>
<th>Radar Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satellite Data</td>
<td>Satellite</td>
<td>Radar Data</td>
</tr>
<tr>
<td>Radar</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
Control Data Scenario 2

**Level 0**

- Satellite Data
- Enable Satellite Processing
- Surveillance Bot
- Radar Trigger
- Radar Data
- Enable Radar Processing
- Process Radar Data
- D Surveillance DB
- Process Satellite Data
- Processed Satellite Data
- Processed Radar Data

- Control Data Scenario 2
References

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  – Design Methods for Reactive Systems, R.J. Wieringa

• Yourdon, E.,
  – Modern Structured Analysis, Prentice Hall, 1989

• The University of Manchester
  – http://www.co.umist.ac.uk/~pjl/CT203/index.html