Parul® University

Software Engineering (Experiments)

Ms. Himani R. Assistant professor of Information technology Department of PIET

Parul®
University

DIGITAL LEARNING CONTENT

Experiment-6

Prepare system analysis and system design of identified requirement specification using structure design as DFD with data dictionary for specific module

Parul®
University

Aim: Data Flow Diagram

Objectives: The main objectives are:

- The objective of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communication tool between a system analyst and any person who plays a part in the order that acts as a starting point for redesigning a system. The DFD is also called as a data flow graph or bubble chart.

Apparatus/Components: word,powerpoint, Microsoft Visio, Edraw Max

Theory

It is a graphical representation of the "flow" of data through an information system, modelling its process aspects

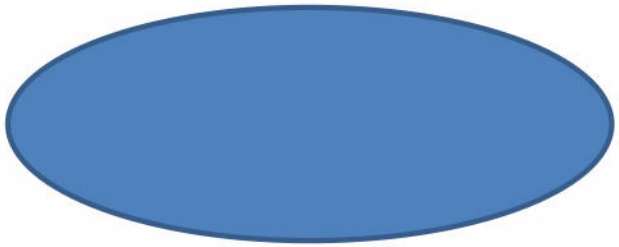
It is often **used** as a preliminary step to create an overview of the system, which can later be elaborated

Parul®
University

DIGITAL LEARNING CONTENT

Theory

external entity



process

data flow

data store

External entity

A producer or consumer of data

Examples: a person, a device, a sensor

Another example: computer-based system

Data must always originate somewhere and must always be sent to something

Process

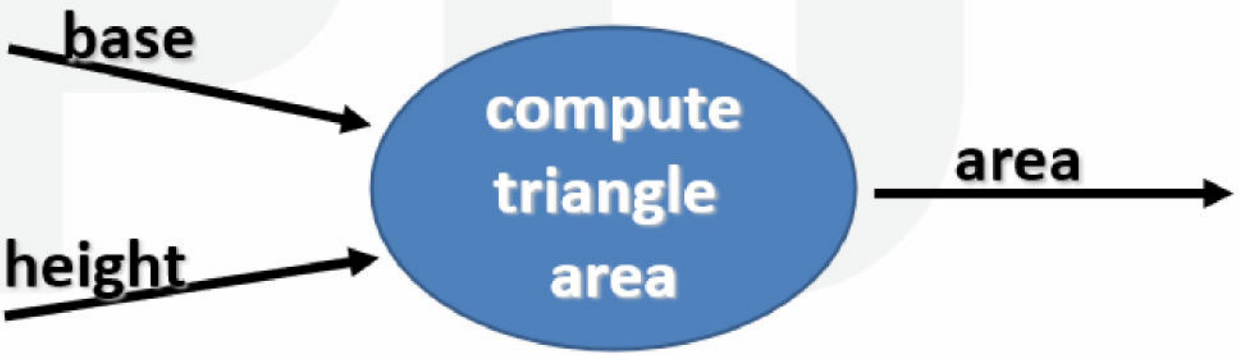
A data transformer (changes input to output)

Examples: *compute taxes, determine area, format report, display graph*

Data must always be processed in some way to achieve system function

Data flow

Data flows through a system, beginning as input and transformed into output.

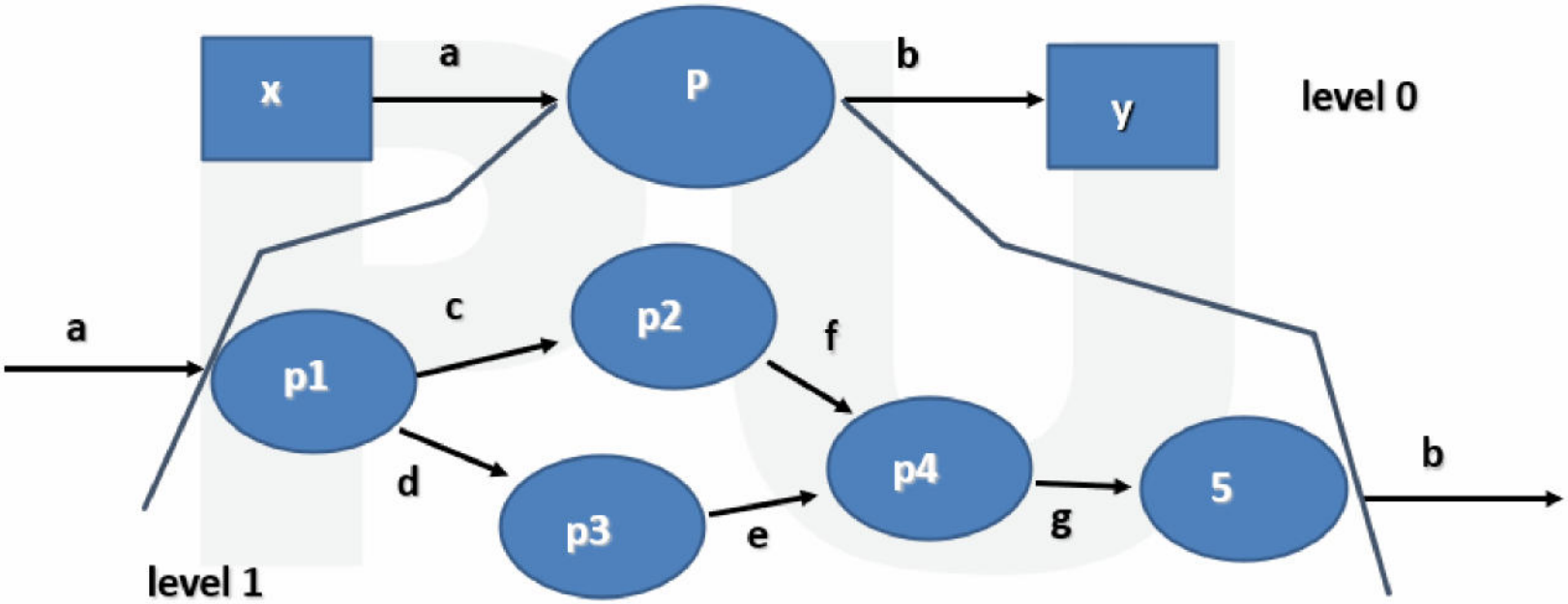


Parul®
University

Data flow Diagramming: Guideline

- All icons must be labeled with meaningful names
- The DFD evolves through a number of levels of detail
- Always begin with a context level diagram (also called level 0)
- Always show external entities at level 0
- Always label data flow arrows
- Do not represent procedural logic

Procedure: DFD level 0 ,DFD level 1



Code: Example of DFD for Order processing

Steps:

1. Create a list of activities
2. Construct Context Level DFD
   (identifies sources and sink)
3. Construct Level 0 DFD
   (identifies manageable sub processes)
4. Construct Level 1- n DFD
   (identifies actual data flows and data stores)

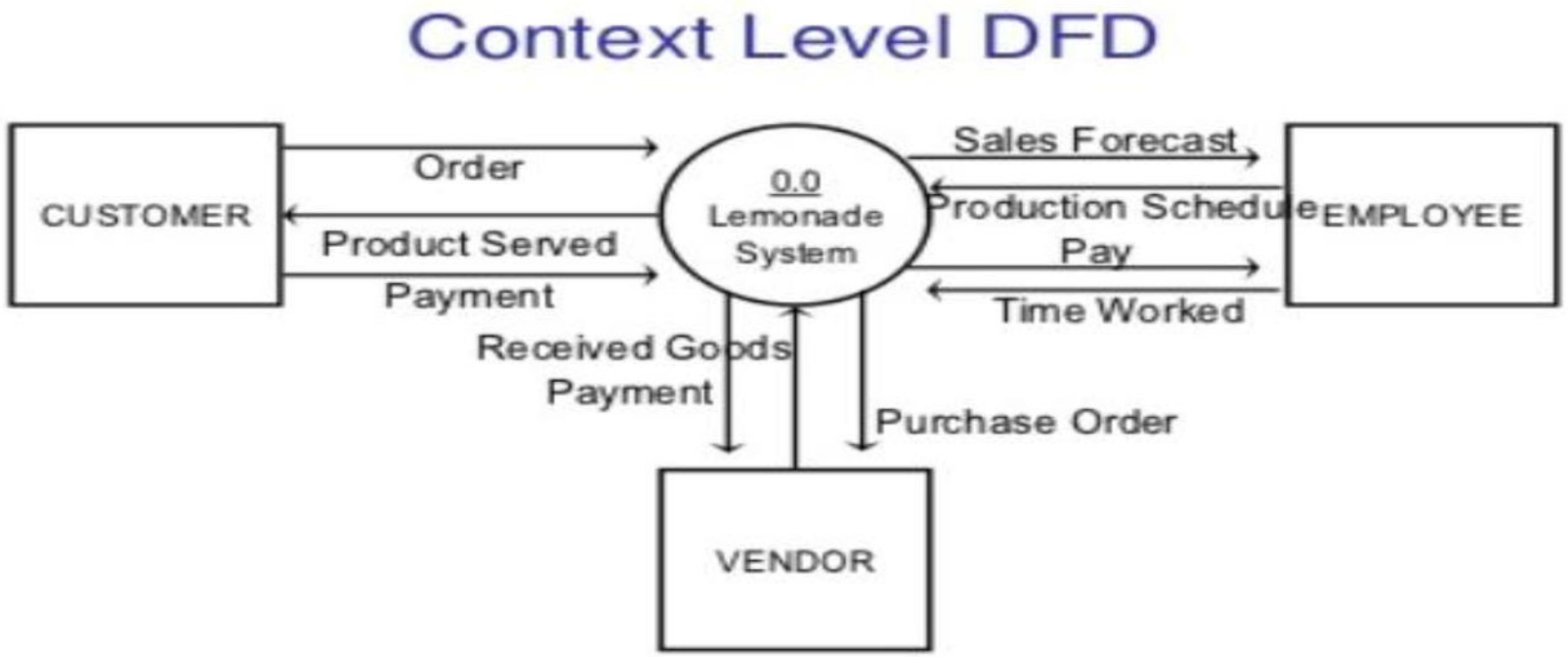
Code: Example of DFD for Order processing

1. Create a list of activities

Customer Order
Serve Product
Collect Payment
Produce Product
Store Product
Order Raw Materials
Pay for Raw Materials
Pay for Labor

Code: Example of DFD for Order processing

2. Construct Context Level DFD (identifies sources and sink)

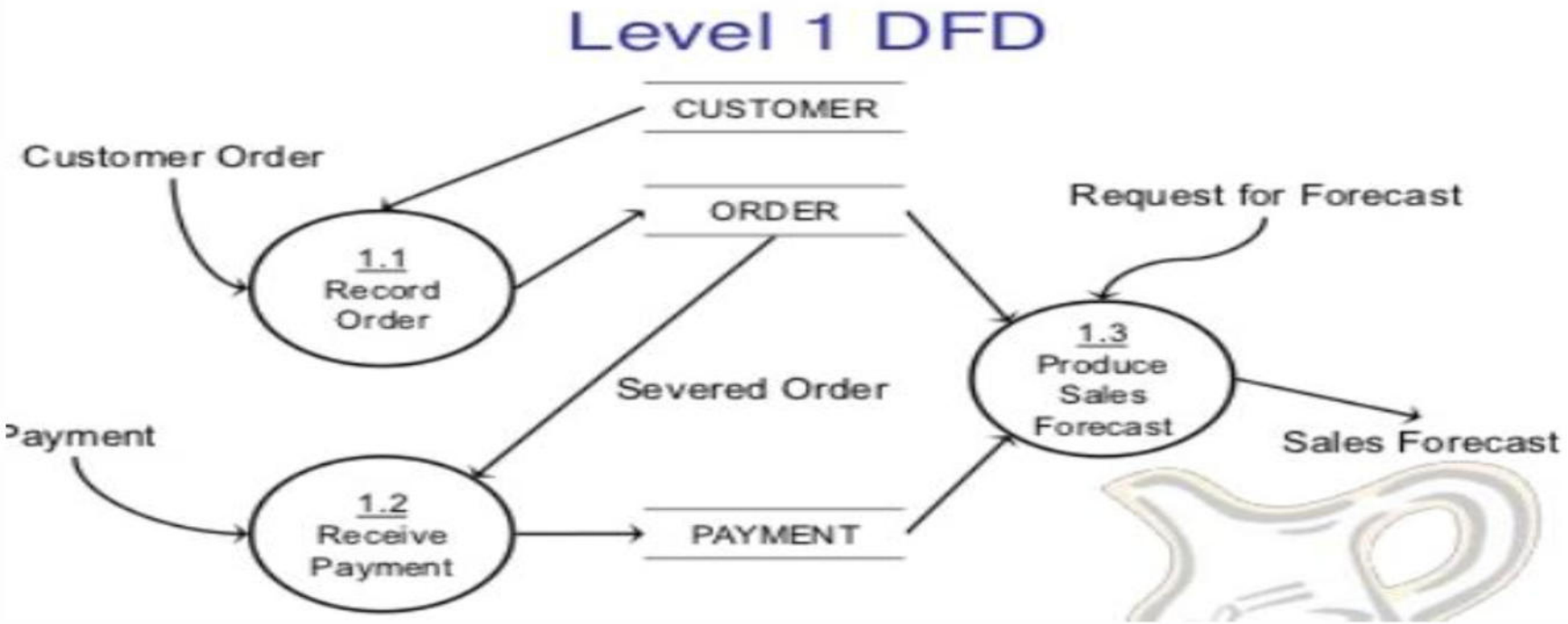


Code: Example of DFD for Order processing

3. Construct Level 0 DFD
(identifies manageable sub processes)

Code: Example of DFD for Order processing

4. Construct Level 1- n DFD
(identifies actual data flows and data stores)



Code: Example of Data Dictionary

- A data dictionary contains metadata i.e data about the database.
- The data dictionary is very important as it contains information such as what is in the database, who is allowed to access it, where is the database physically stored etc.
- The users of the database normally don't interact with the data dictionary, it is only handled by the database administrators.

Code: Example of Data Dictionary

- Table name: scheme1_master
- Primary key: schemeid
- Foreign key: null

References:

FIELDNAME	DATATYPE	SIZE	CONSTRAINT	DESCRIPTION
Schemeid	Varchar2	20	Primary key	Stores the id of scheme
Time	Number	10		Stores the total time provided by scheme (in hours)
Days	Number	10		Stores the total days for expiring the scheme
Rupees	Number	4		Stores the amount for the schemes

Parul®
University

DIGITAL LEARNING CONTENT

Code: Example of Data Dictionary

•Table name: login_master
Primary key: userid
Foreign key: References:

FIELDNAME	DATATYPE	SIZE	CONSTRAINT	DESCRIPTION
Userid	Varchar2	20	Primary key.	Member's id/coupons for non-members
Password	Varchar2	20	Should not be null	Member's password

2) Table name: mem_master

Primary key: memid
Foreign key:

FIELDNAME	DATATYPE	SIZE	CONSTRAINT	DESCRIPTION
Memid	Varchar2	10	Primary key.	Provide unique id to each member
address	Varchar2	10		Stores address of each member
Phone	Number	10		Stores phone number of each member
Email	Varchar2	20		Stores email id of each member
Date	Date/time	8		Stores registration date
time	Date/time	8		Stores total time left for surfing

References:

Code: Example of Data Dictionary

3) Table name: coupon_master
Primary key: coupid
Foreign key: References:

FIELDNAME	DATATYPE	SIZE	CONSTRAINT	DESCRIPTION
Coupid	Varchar2	10	Primary key.	Provides unique coupon for non-members
Time	Number	8		Stores the total time provided by coupon(in hours)
Days	Number	4		Stores the total days for expiring coupon

4) Table name: account_master
Primary key: {id, logindate, logintime}
Foreign key: References:

FIELDNAME	DATATYPE	SIZE	CONSTRAINT	DESCRIPTION
Id	Varchar2	20	Primary key.	Stores the id of user
Logindate	Date/time	8	Primary key	Stores the login date of user
Logintime	Date/time	8	Primary key	Stores the login time of user
Logofftime	Date/time	8	(Logoff-login) time should not exceed the valid time remaining for user	Stores the current balance of user

Parul®
University

DIGITAL LEARNING CONTENT

Experiment Demonstration