



Republic of the Philippines  
Department of Education  
REGION III  
SCHOOLS DIVISION OFFICE OF NUEVA ECija

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**LEARNING ACTIVITY SHEET  
SPECIAL PROGRAM IN ICT 10  
INFORMATION SYSTEM AND RESEARCH 10**  
*Third Quarter, Week 6*

Name of Learner:

\_\_\_\_\_ Date: \_\_\_\_\_

Grade Level /Section: \_\_\_\_\_

## **DATA FLOW DIAGRAM**

## **BACKGROUND INFORMATION FOR LEARNERS**

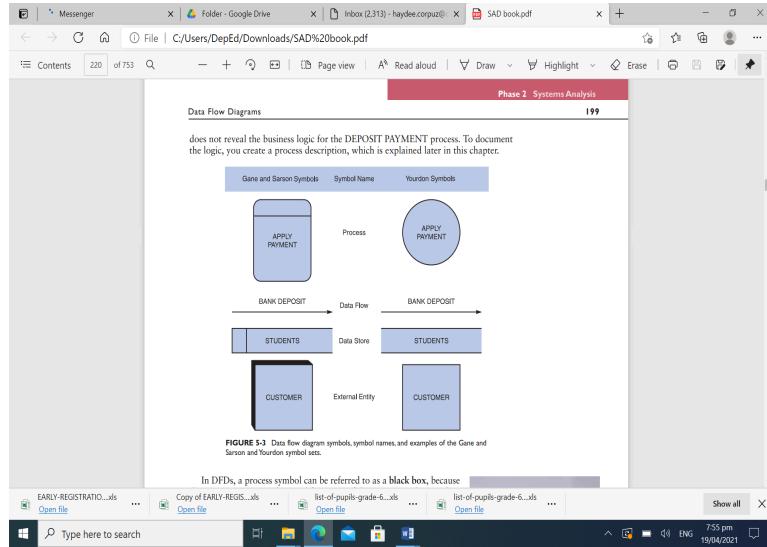
Systems analysts use many graphical techniques to describe an information system. One popular method is to draw a set of data flow diagrams. A *data flow diagram (DFD)* uses various symbols to show how the system transforms input data into useful information.

A data flow diagram (DFD) shows how data moves through an information system but does not show program logic or processing steps. A set of DFDs provides a logical model that shows what the system does, not how it does it.

### **DFD Symbols**

DFDs use four basic symbols that represent processes, data flows, data stores, and entities. Several different versions of DFD symbols exist, but they all serve the

same purpose. Symbols are referenced by using all capital letters for the symbol name.



## PROCESS SYMBOL

A process receives input data and produces output that has a different content, form, or both. The symbol for a process is a rectangle with rounded corners. The name of the process appears inside the rectangle. The process name identifies a specific function and consists of a verb (and an adjective, if necessary) followed by a singular noun. Examples of process names are **APPLY RENT PAYMENT**, **CALCULATE COMMISSION**, **ASSIGN FINAL GRADE**, **VERIFY ORDER**, and **FILL ORDER**.

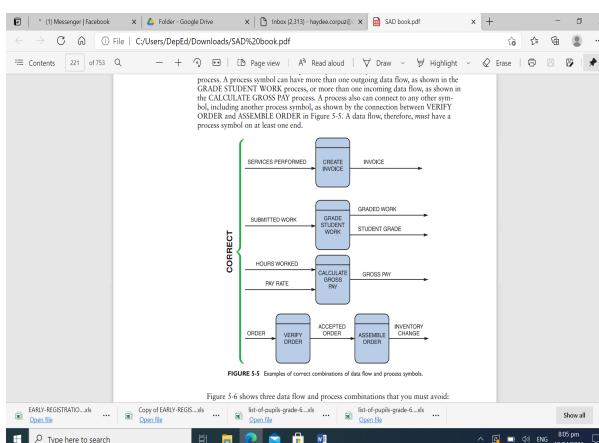
In DFDs, a process symbol can be referred to as a black box, because the inputs, outputs, and general functions of the process are known, but the underlying

details and logic of the process are hidden. By showing processes as black boxes, an analyst can create DFDs that show how the system functions, but avoid unnecessary detail and clutter.

The network router is an example of a black box. An observer can see cables that carry data into and out of the router, but the router's internal operations are not revealed — only the results are apparent.

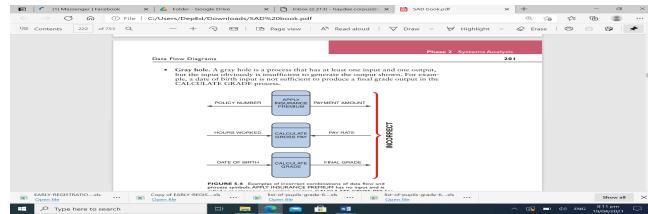
## DATA FLOW SYMBOL

A data flow is a path for data to move from one part of the information system to another. A data flow in a DFD represents one or more data items. The symbol for a data flow is a line with a single or double arrowhead. The data flow name appears above, below, or alongside the line. A data flow name consists of a singular noun and an adjective, if needed. Examples of data flow names are DEPOSIT, INVOICE PAYMENT, STUDENT GRADE, ORDER, and COMMISSION. Exceptions to the singular name rule are data flow names, such as GRADING PARAMETERS, where a singular name could mislead you into thinking a single parameter or single item of data exists.

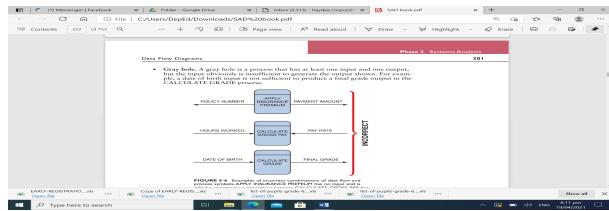


Examples of correct combination of data flow and process symbol.

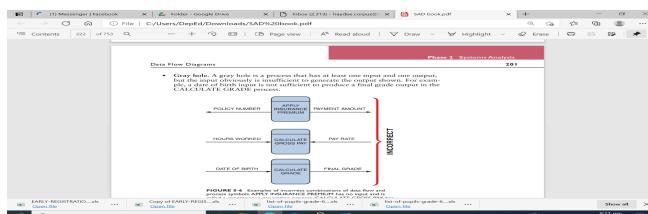
Three data flow and process combinations that you must avoid:



Spontaneous generation. The **APPLY INSURANCE PREMIUM** process, for instance, produces output, but has no input data flow. Because it has no input, the process is called a spontaneous generation process.



Black hole. The **CALCULATE GROSS PAY** is called a black hole process, which is a process that has input, but produces no output.



Gray hole. A gray hole is a process that has at least one input and one output, but the input is unnecessary to calculate the output shown. For example, the **CALCULATE GRADE PAY** process is a gray hole because it produces a final grade output on the basis of people's grade B, but it does not require any input data.

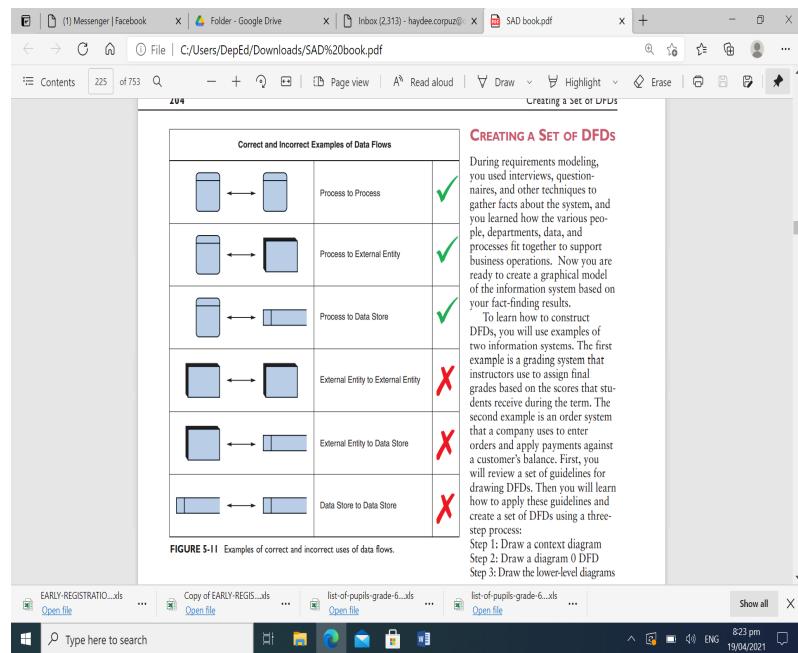
the input obviously is insufficient to generate the output shown. For example, a date of birth input is not sufficient to produce a final grade output in the CALCULATE GRADE process.

## **DATA STORE SYMBOL**

A data store is used in a DFD to represent data that the system stores because one or more processes need to use the data at a later time. In a DFD, the Gane and Sarson symbol for a data store is a flat rectangle that is open on the right side and closed on the left side. The name of the data store appears between the lines and identifies the data it contains. A data store name is a plural name consisting of a noun and adjectives, if needed. Examples of data store names are STUDENTS, ACCOUNTS RECEIVABLE, PRODUCTS, DAILY PAYMENTS, PURCHASE ORDERS, OUTSTANDING CHECKS, INSURANCE POLICIES, and EMPLOYEES. Exceptions to the plural name rule are collective nouns that represent multiple occurrences of objects. A data store must be connected to a process with a data flow.

## **ENTITY SYMBOL**

The symbol for an entity is a rectangle, which may be shaded to make it look three dimensional. The name of the entity appears inside the symbol. A DFD shows only external entities that provide data to the system or receive output from the system. A DFD shows the boundaries of the system and how the system interfaces with the outside world. For example, a customer entity submits an order to an order processing system.



## LEARNING COMPETENCY

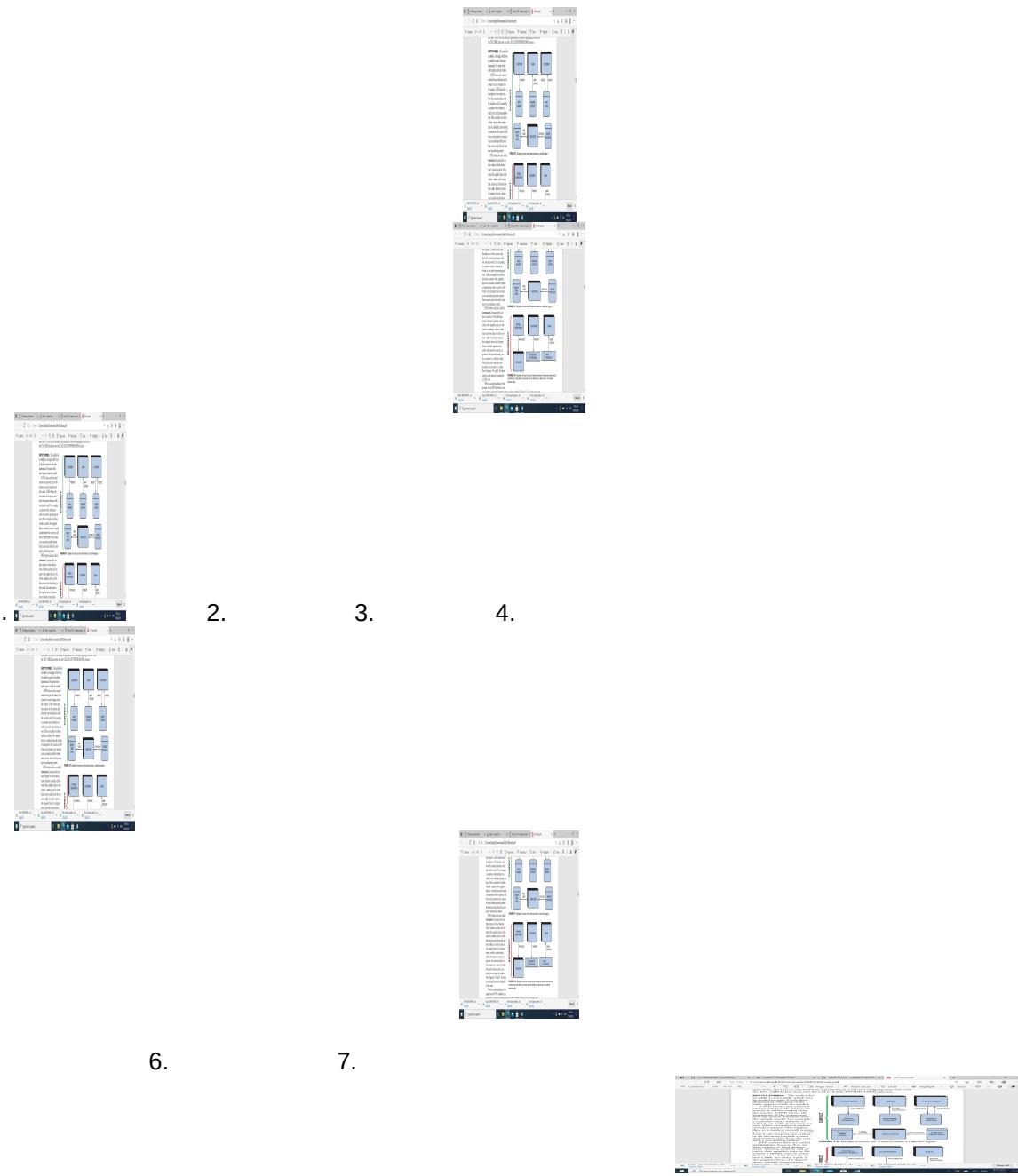
Explain data flow diagram

## ACTIVITIES

### Activity 1 :

Tell whether the following diagram is correct or incorrect:

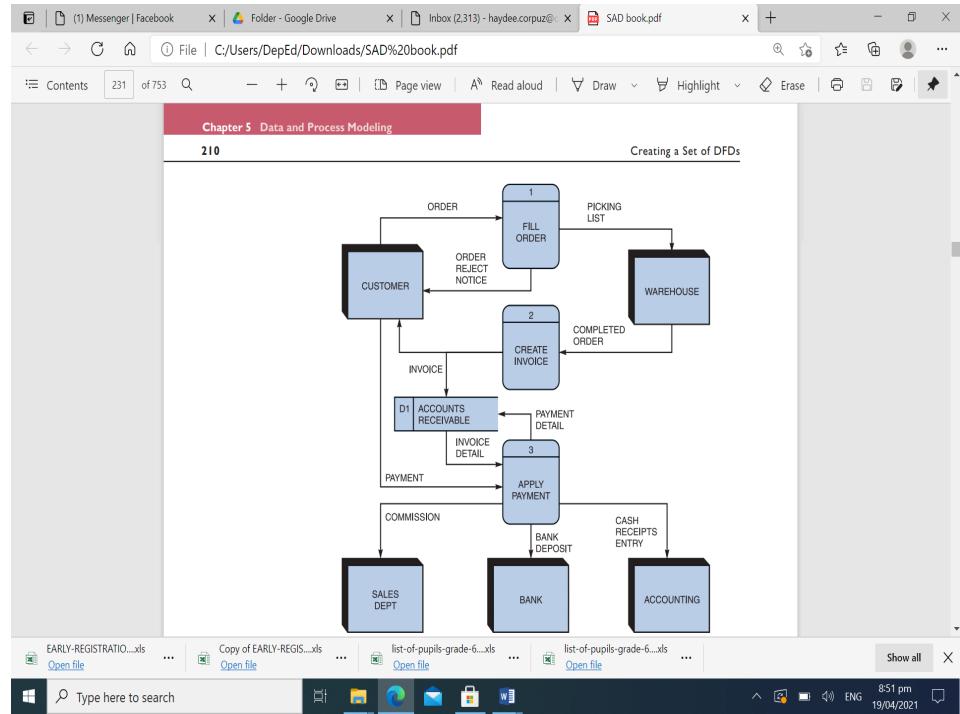




## Activity 2:

List down the names of the symbols that can be found in the diagram below.

Process	Data flow	Data Store	Entity

## REFLECTION:

Why does data flow diagram (DFD) important in developing an information system?

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## **REFERENCES**

Systems Analysis and Design Method Eight Edition by Gary B. Shelly & Harry Jay Rosenblatt

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