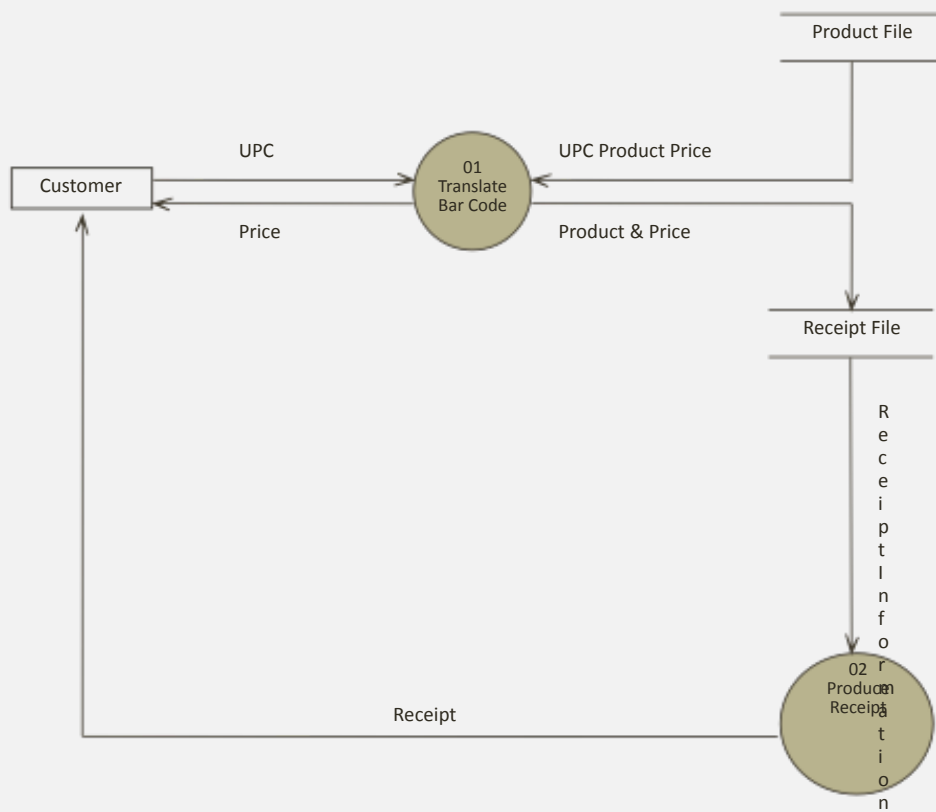# Data Flow Diagram Exercises with solutions

Note that the symbols are not exactly as expected as they were drawn with a graphics package but they give the idea.
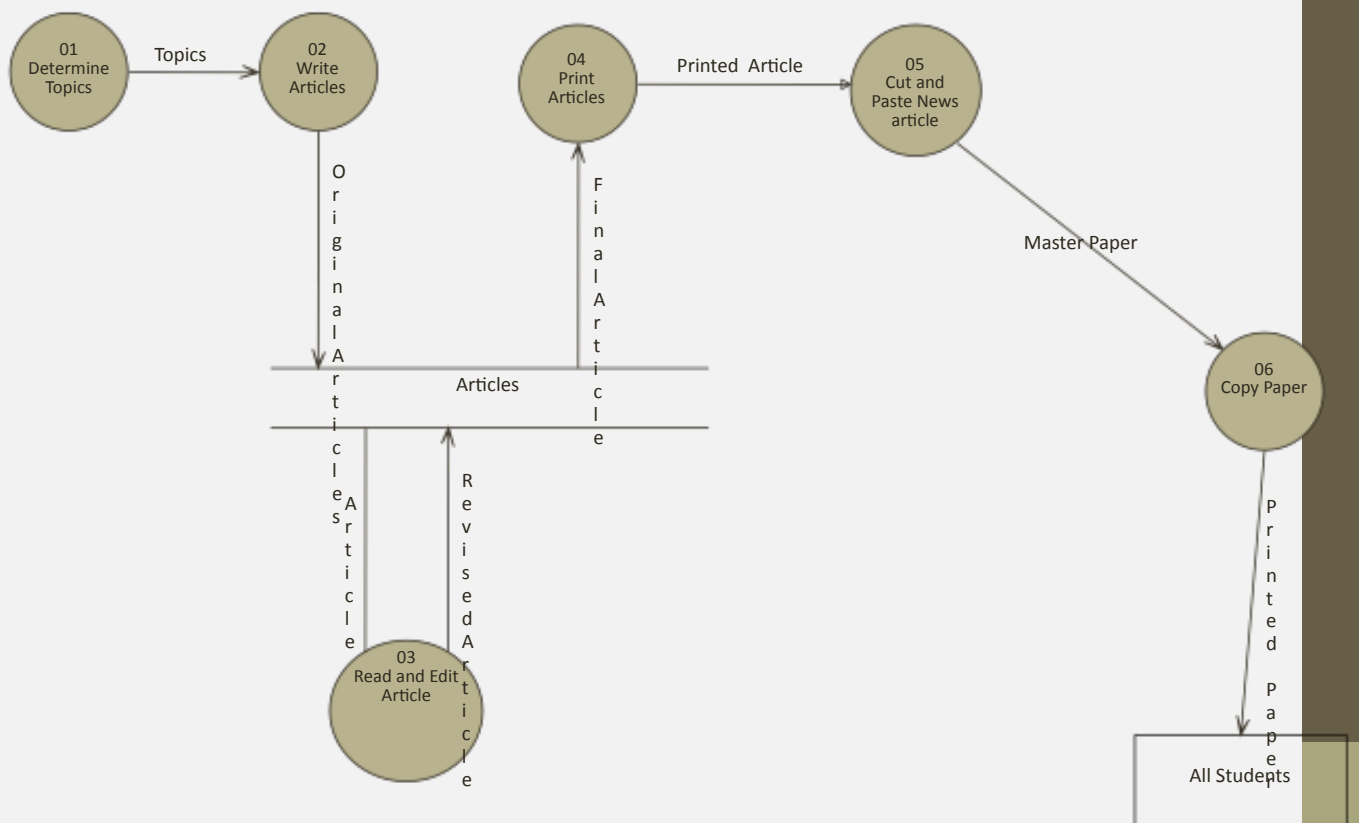
Exercise 1

Draw a data flow diagram that shows the appropriate details for this point-of-sales system:

Grocery store checkers at Big Bob's Supermarket use a scanner that reads universal product bar codes (UPC). The bar code for each purchase is translated by the special-purpose computer (the cash register), accessing a product file. This translation triggers a voice output of the price. The product type and the price of each purchase are stored in a file to be used in printing the receipt. After all purchases have been scanned, a receipt is produced and given to the customer.
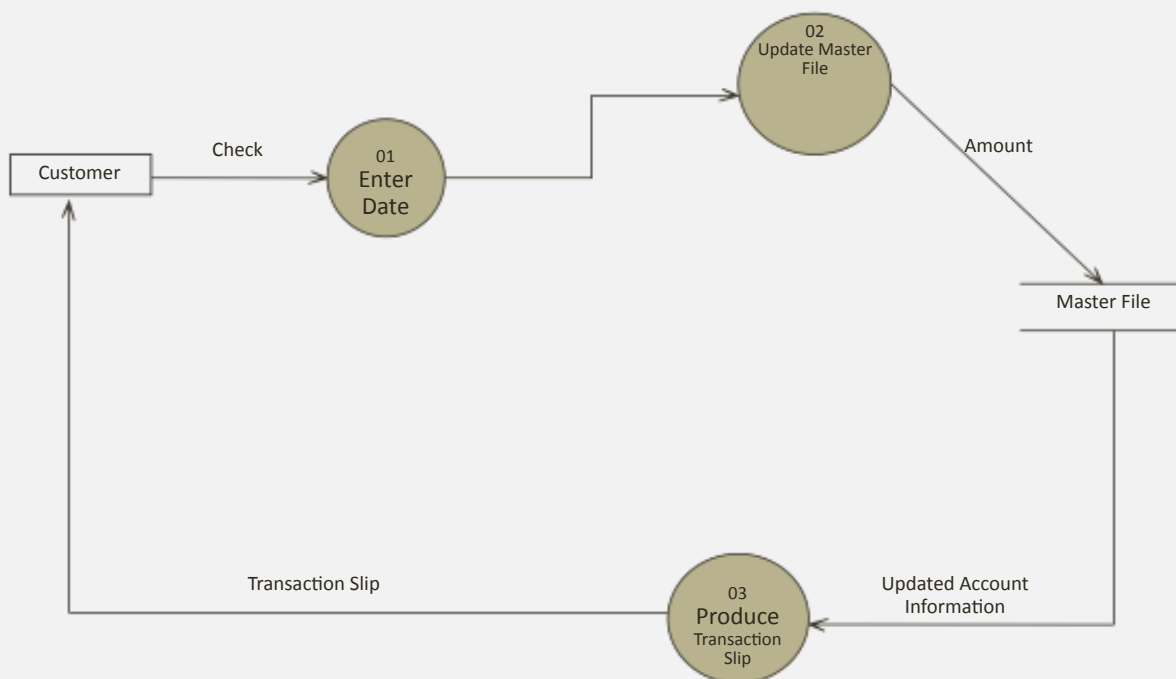
Exercise 2

A fifth-grade class uses a simple word processing program to create the class newspaper. Every month the teacher makes a list of different topics. Each student writes an article on one of the topics and stores it on his or her own floppy disk. Students read and edit one another's article files. A final version of each of the articles is then created.   These individual master copies are cut and pasted by the newspaper editor to produce the paper. Copies are then made and distributed to the entire school.

01
Determine
Topics

Topics

02
Write
Articles

Original Article

Articles

Articles

Revised Article

03
Read and Edit
Article

04
Print
Articles

Final Article

Printed Article

05
Cut and
Paste News
article

Master Paper

06
Copy Paper

Printed Paper

All Students

Exercise 3

Draw a data flow diagram for the check cashing process for First National Bank, showing all the appropriate details:

When a customer wishes to withdraw cash at a drive-in window at First National Bank, he or she must write a check made out to Cash. The check is sent to the teller office via vacuum tube. One of the four tellers enters the checking account number and the amount on one of the terminals. The amount is subtracted from the proper account balance in the account master file. A transaction slip is the printed with the check amount, updated account balance, and account number. The slip is returned to the customer via vacuum tube.
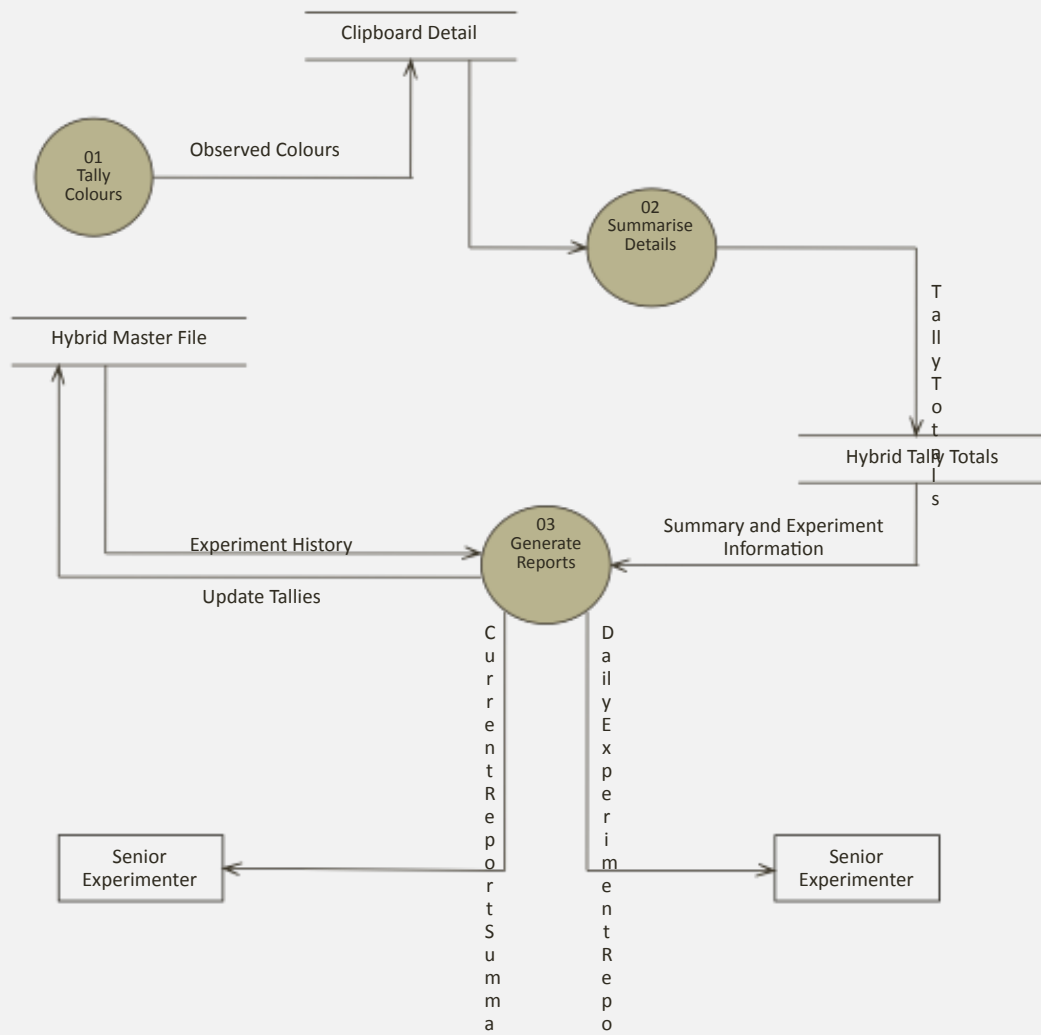
Exercise 4

Draw a data flow diagram for recording, analysing, and reporting the experimental work with flowers at Fancy Flowers Seed Company. Show all the appropriate details.
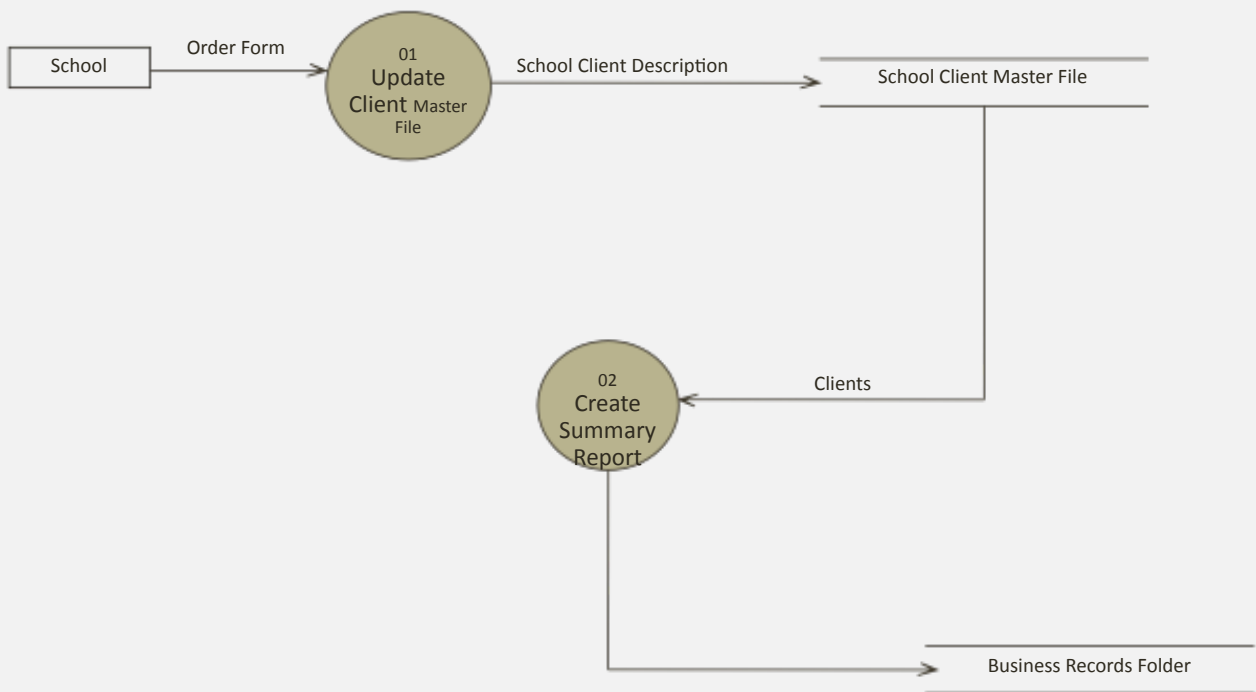
Experimenters at Fancy Flowers Seed Company record flower colors for new hybrids. The experimenters tally colours on a clipboard while walking down rows of plant boxes. After observations have been completed, each of the three experimenters keys in tally totals on the company's single computer for later analysis. At the end of the day, the senior experimenter runs a program to create a daily experiment report and an updated summary report on the current experimental work for herself. Past information is taken from the hybrid master file for this report; results stored in the file are also updated by the analysis program.

Clipboard Detail

01
Tally
Colours

Observed Colours

02
Summarise
Details

Tally Totals

Hybrid Master File

Hybrid Tally Totals

Experiment History

03
Generate
Reports

Summary and Experiment
Information

Update Tallies

Current Report Summa

Daily Experiment Repo

Senior
Experimenter

Senior
Experimenter

Exercise 5

After a school orders copies of educational software, Peter Sargent's first step is to update his school client master file. Once the updating is complete, he runs a program to create a summary report of the updated school client master. His summary report goes in his business records folder. Draw a data flow diagram for Peter's record-keeping process for educational software, showing all the appropriate details.

School —Order Form→ 01 Update Client Master File —School Client Description→ School Client Master File

School Client Master File —Clients→ 02 Create Summary Report

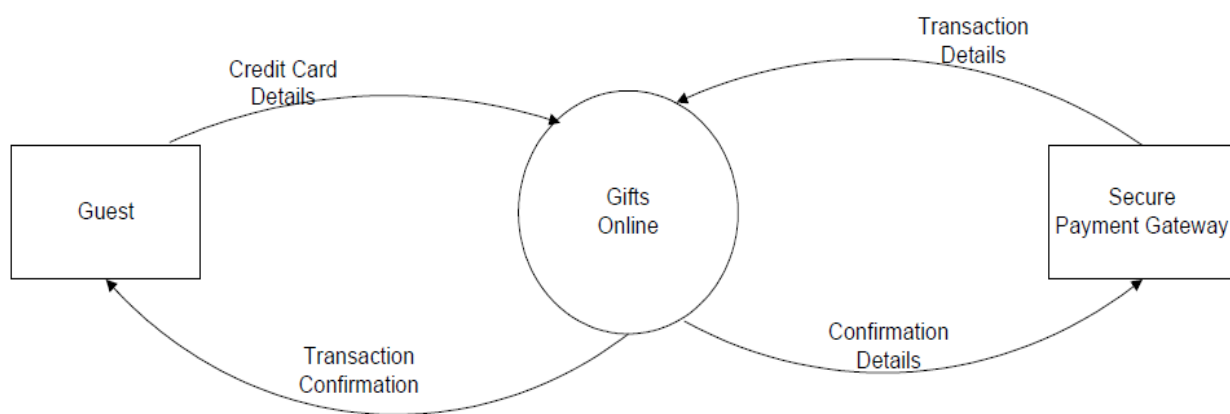02 Create Summary Report —→ Business Records Folder

Gifts Online

Gifts Online provides online purchasing facilities so guests who have been invited to an occasion can select gifts from lists that have been prepared by the host(s) of the occasions.

This will include ordering, provision of purchasing facilities, provision of secure e-commerce transactional facilities through to wrapping and delivery.

After guest has entered their username and password, the user can select the name of the person(s) for whom the occasion is being held from a keyword search facility. The system provides the user with the gifts that the host would like guests to look at. The user can view and select one or more gifts by looking at the Price, category, and details.

After the user has placed the gift(s) in the shopping trolley the user confirms the order. At this point a Secure Payment Gateway connection is established and the user is required to enter credit card details. After finally submitting the order, the company's inventory and payments databases are updated and the user is sent an email with order confirmation and delivery details.

Level 0 DFD (Context Diagram) – Gifts Online System

Level 1 DFD – Gifts Online System

Reject

Transaction
Confirmation

Transaction
Details

Secure
Payment Gateway

Credit
Details

5 Confirm
Payment

Payments

Order

Users

Orders

Inventory
Details

Confirmation
Details

Registered
User
Details

1 Approve User
Details

Gifts

4 Confirm
Order

User Details

Credit
Card
Details

Reject

Approved
User

Events

Gift
Details

Guest

Host
Details

Selected
Gift

Guest

2 Locate
Gift List

3 Select
Gift

Gift List