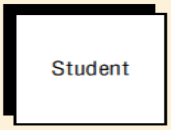
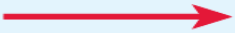
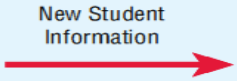
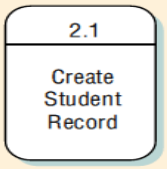
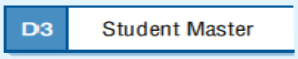
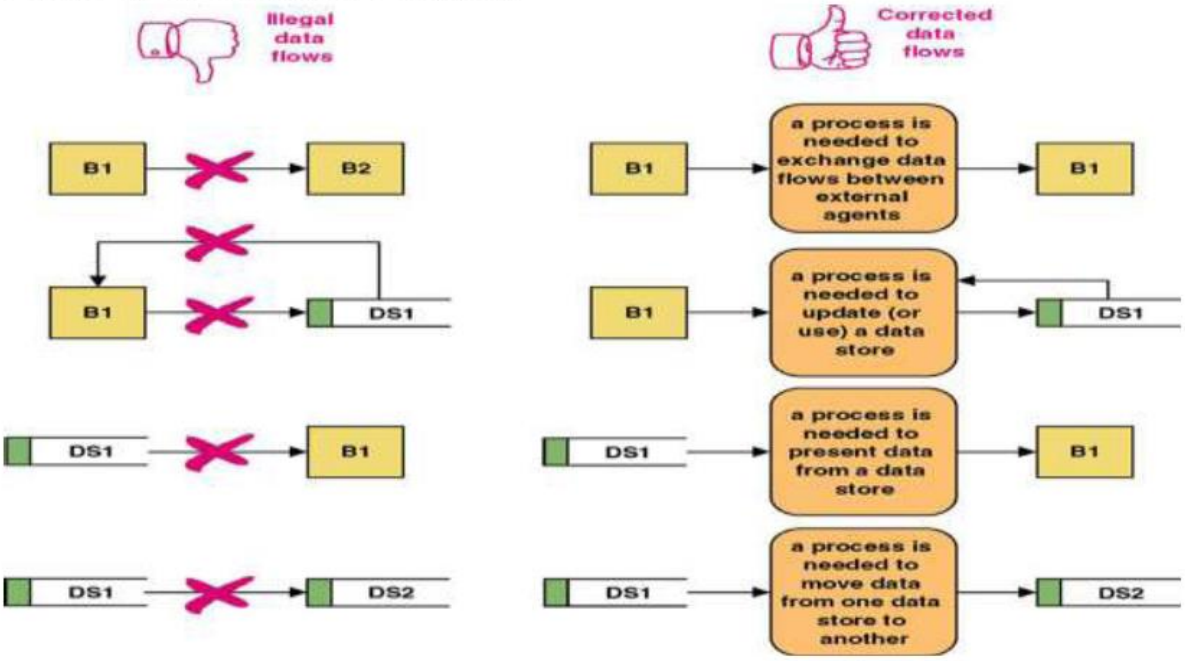
Data flow diagram

The Basic Symbols Used in Data Flow Diagrams

Symbol	Meaning	Example
	Entity	
	Data Flow	
	Process	
	Data Store	

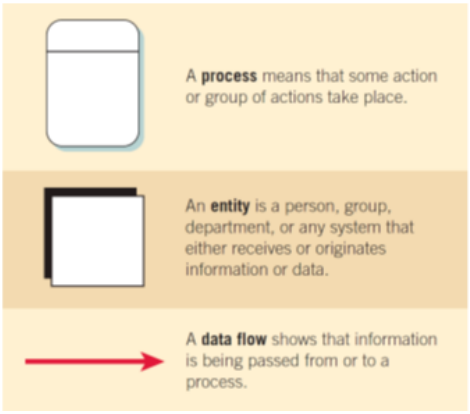
Errors in a Data Flow Diagram



Context-Level Data Flow Diagrams

- Focus is on the data flowing into and out of the system and the processing of the data.
- Shows the scope of the system:
  - What is to be included in the system.
  - The external entities are outside the scope of the system.

The Basic Symbols of a Data Flow Diagram (in context diagram)



Context diagram for grading system

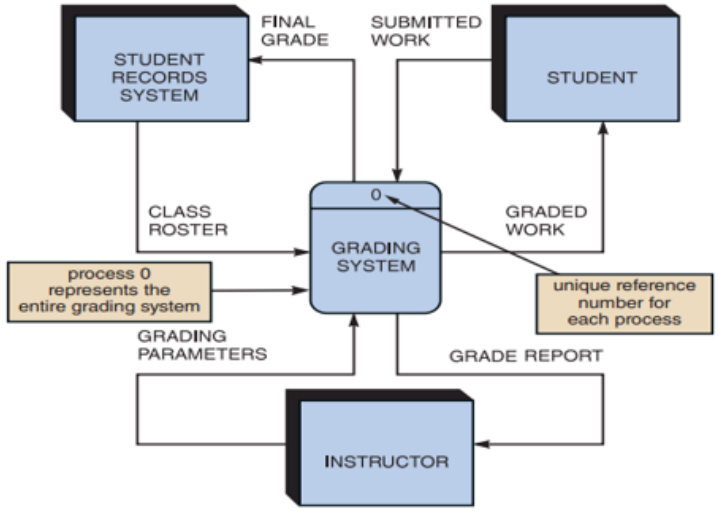
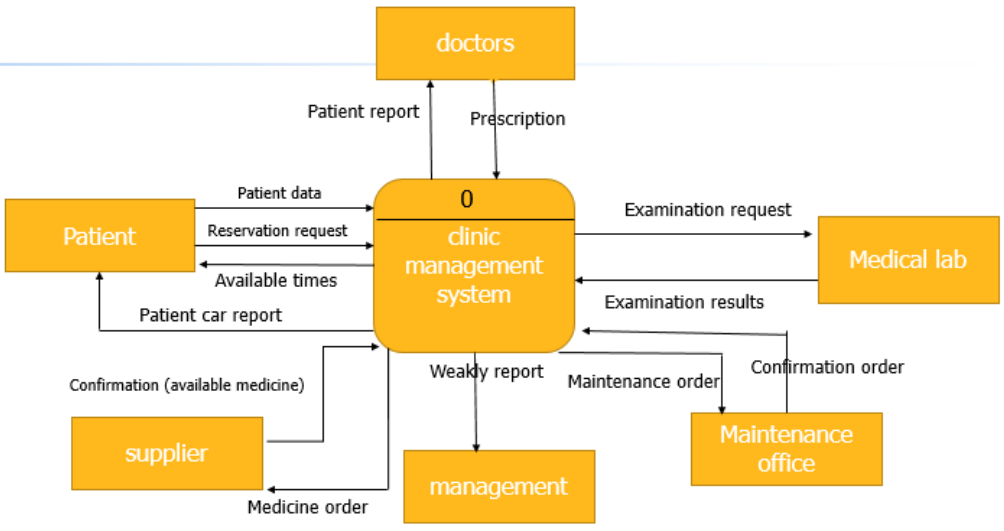


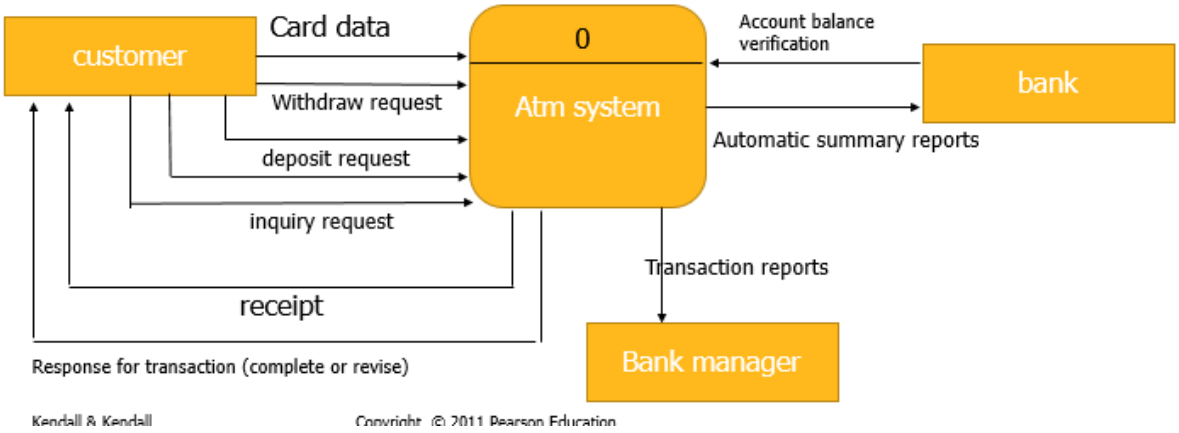
FIGURE 5-12 Context diagram DFD for a grading system.

CONTEXT DIAGRAM FOR Online clinic management system



CONTEXT DIAGRAM FOR AN ATM SYSTEM

The ATM must be able to provide the following services to the customer:
A customer must be able to make a cash withdrawal from any suitable account linked to the card. Approval must be obtained from the bank before cash is dispensed.
2. A customer must be able to make a deposit to any account linked to the card, consisting of cash. The customer will enter the amount of the deposit into the ATM, then the verification will be conduct by the machine for approval.
3. A customer must be able to make a balance inquiry of any account linked to the card.
4. The ATM will provide the customer with a printed receipt for each successful transaction, showing the date, time, machine location, type of transaction.
The bank manager should receive a transaction report.



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Practice 1

- Letters of complaint received from citizens are entered into a complaints master file by the City Clerk's office. The date, department code, and a complaint description are stored for each letter. Weekly reports are produced from the complaints master file and given to the City Manager. Two weekly reports are produced: a department summary and a detail report of complaint.

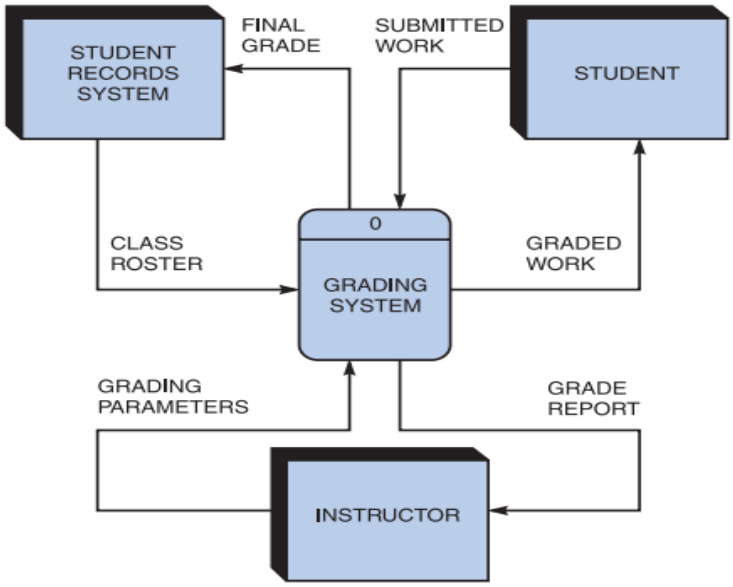
Practice 2

Perfect pizza wants to install a system to record orders for pizza and chicken wings. When regular customers call perfect pizza on the phone, their phone numbers goes automatically into the system.

The phone number invokes the name, address, and last order date comes automatically up on the screen, once the order is taken the total including the tax and delivery is calculated. Then the order is given to the cook. A receipt is printed. Special offers is printed so the customer can get a discount. Drivers who make deliveries give customer a copy of the receipt and offer (if any). Weekly totals are kept for comparison with last year's performance.

Construct a context diagram for Perfect pizza.

For this context diagram construct level 0



CONTEXT DIAGRAM FOR GRADING SYSTEM

level 0

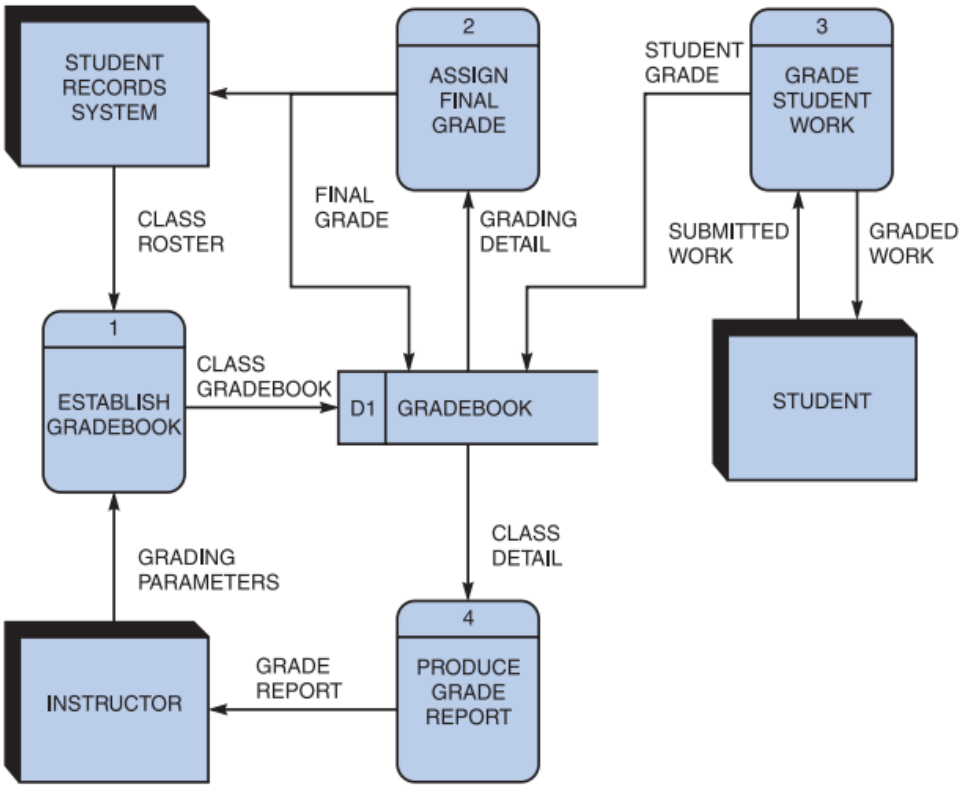
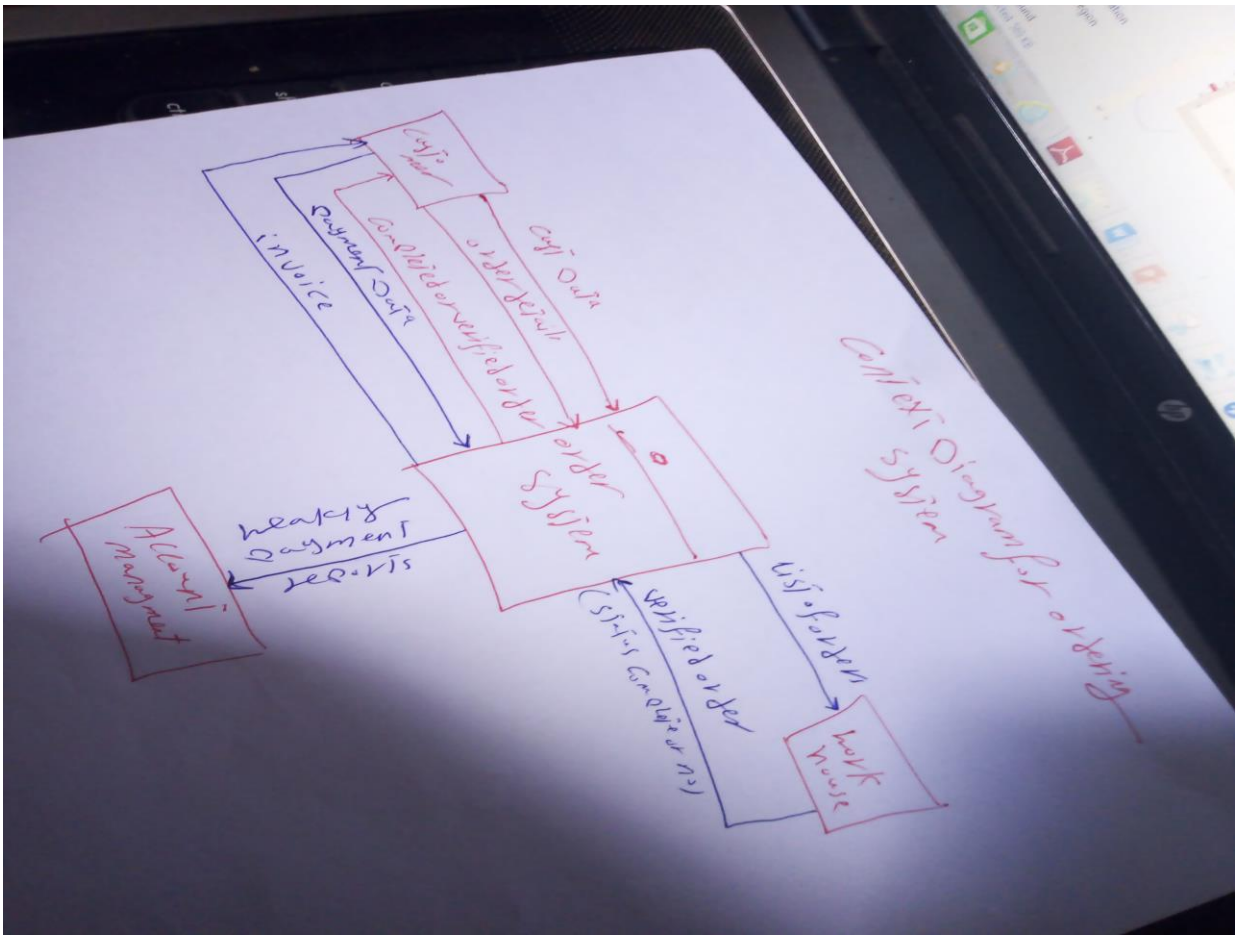
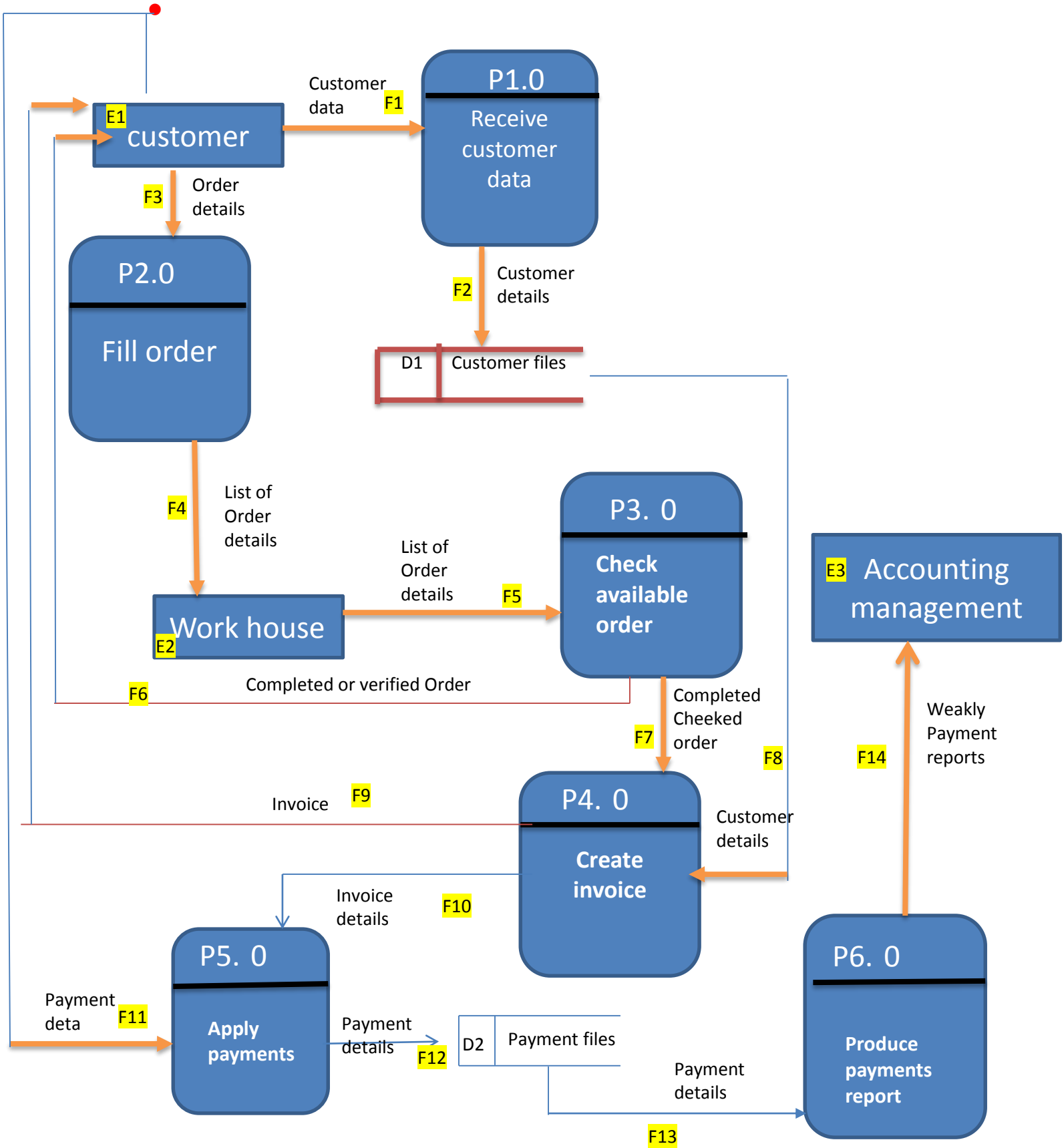


DIAGRAM 0 FOR GRADING SYSTEM


Context Diagram for ordering system
Cust Data
order detail
Completed or verified order
Payment Data
invoice
order system
weakly payment reports
Account management
list of orders
verified order
(status complete or no)
work house

Level0 for ordering system



Data dictionary

External entities

no	Name	Input	output
E1	CUSTOMER	1: Completed or verified Order 2: Invoice	1: Customer data 2: Order details 3: Payment deta
E2	WORKHOUSE	1: List of Order details	List of Order details
E3	ACCOUNTING DEPARTMENT	Payment details	--

Data stores

no	Name	Input	output
D1	Customer files	Customer details	Customer details
D2	Payment files	Payment details	Payment details

Data flow

no	Name	from	to
F1	Customer data	E1	P1.0
F2	Customer details	P1.0	D1
F3			
F4			
F5			
F6			
F7			
F8			
F9			
F10			
F11			
F12			
F13			
F14			

Process

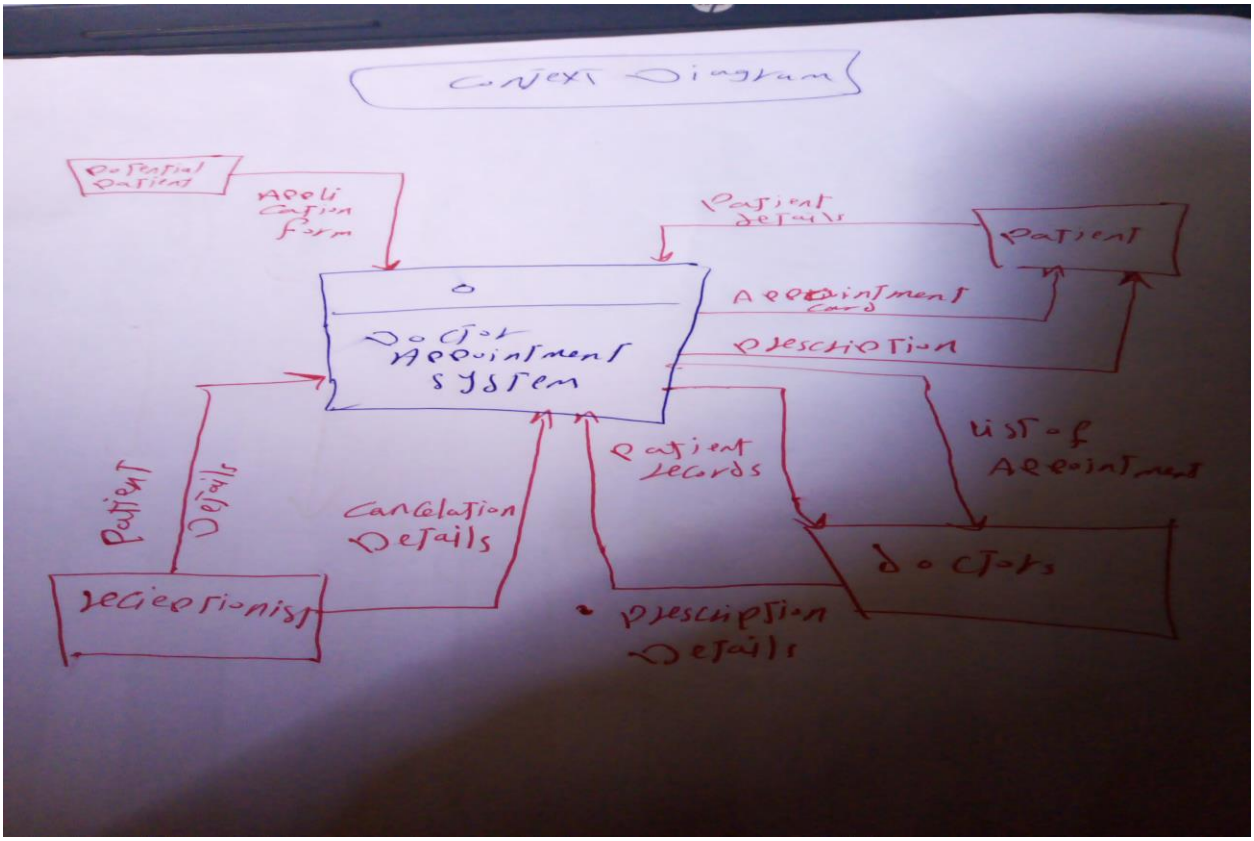
N0	P1.0
name	Receive customer data
input	F1
Out put	F2
description	This process receive the customer data and store this customer data in a database so we can make use of this data in advertisements an in reports and so on

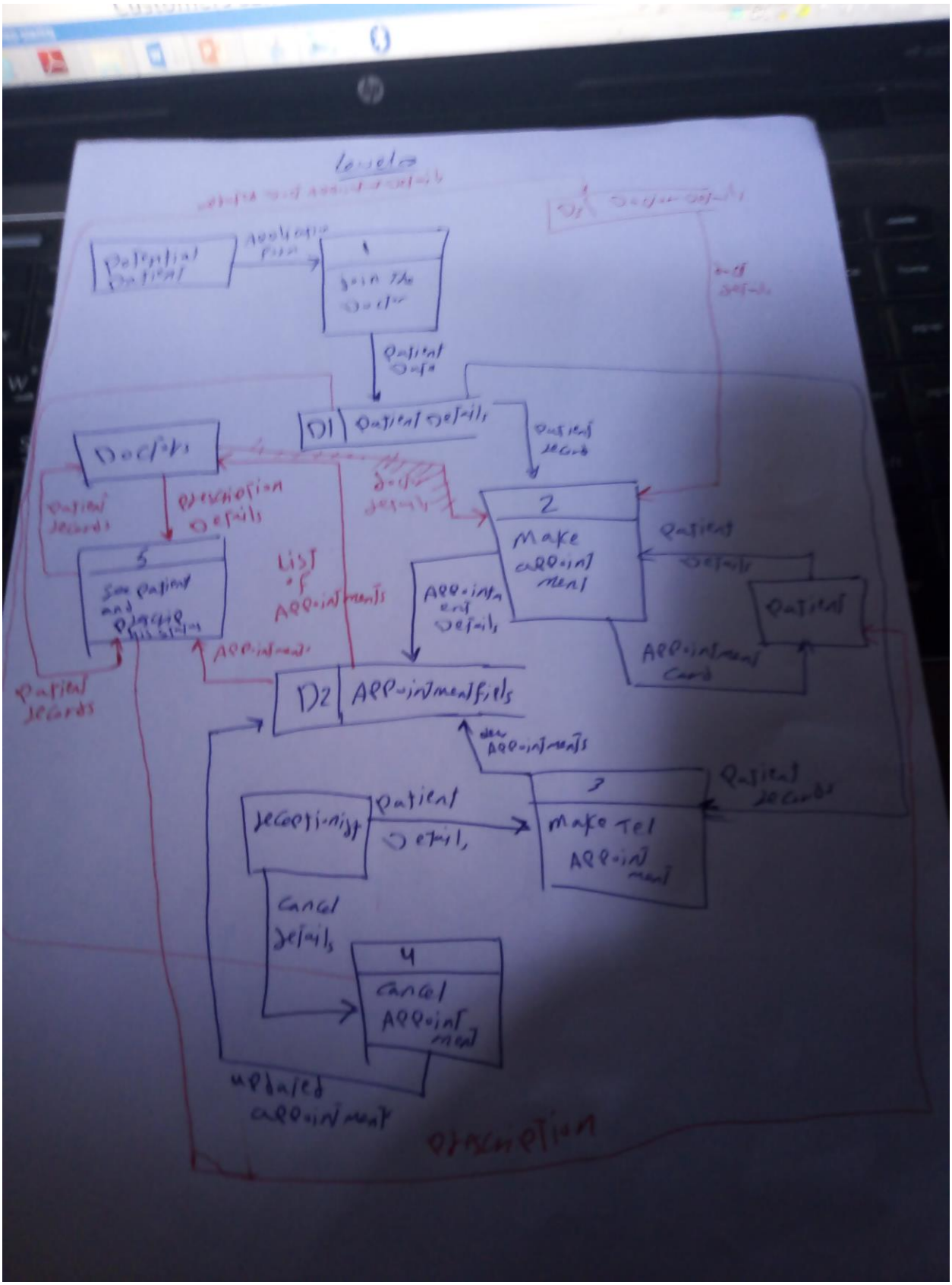
And so on for all process

Scenario examples

3: A potential patient joins the doctor by submitting a patient application form. A new patient record is created and stored in the patient records store. A patient make an appointment by providing their patient details. An appointment card is given to the patient after they have made the appointment, the appointment details is stored in a database, a receptionist makes a telephone appointment for a patient by entering patient details, a receptionist also cancel the appointment for a patient by entering their cancelation details both process update the appointment section database. A doctor will see a patient when they see a patient list of appointment and a patient records will be sent to the doctor. The doctor may want to issue a prescription by entering prescription details into the system. And the prescription will be issued to the patient.

Draw context diagram, level0, level 1




Level 0
Potential Patient
Application form
1
Join the Doctor
Patient Data
D1
Patient Details
Patient Record
Doctors
Patient Records
Prescription Details
Doctor Details
2
Make Appointment
Patient Details
Patient
Appointment Card
5
See Patient and Prescription
List of Appointments
Appointment Details
Appointments
Patient Records
D2
Appointment Fields
Appointments
3
Make Tel Appointment
Patient Records
Receptionist
Patient Details
Cancel Details
4
Cancel Appointment
Updated Appointment
Prescription

2: online car rental system:

System requirements: the system should allow the customer to see available cars and rental rates and to make online reservation.

The customer deal with the system by sending their rental requirements. The system should provid the customer with a notification if the car not available and a list of available cars if the car requirements available then the customer choice or select the car the customer also send their reservation car info (name, email, credit card number). There are also a bank that make authentication on credit card information. The system send invoice and rental summary (total price, car he selected, date,…)to the customer. If the car is booked or reserved the system send rental notification to the garage.

You should store the car details and the customer details.

You have four process:

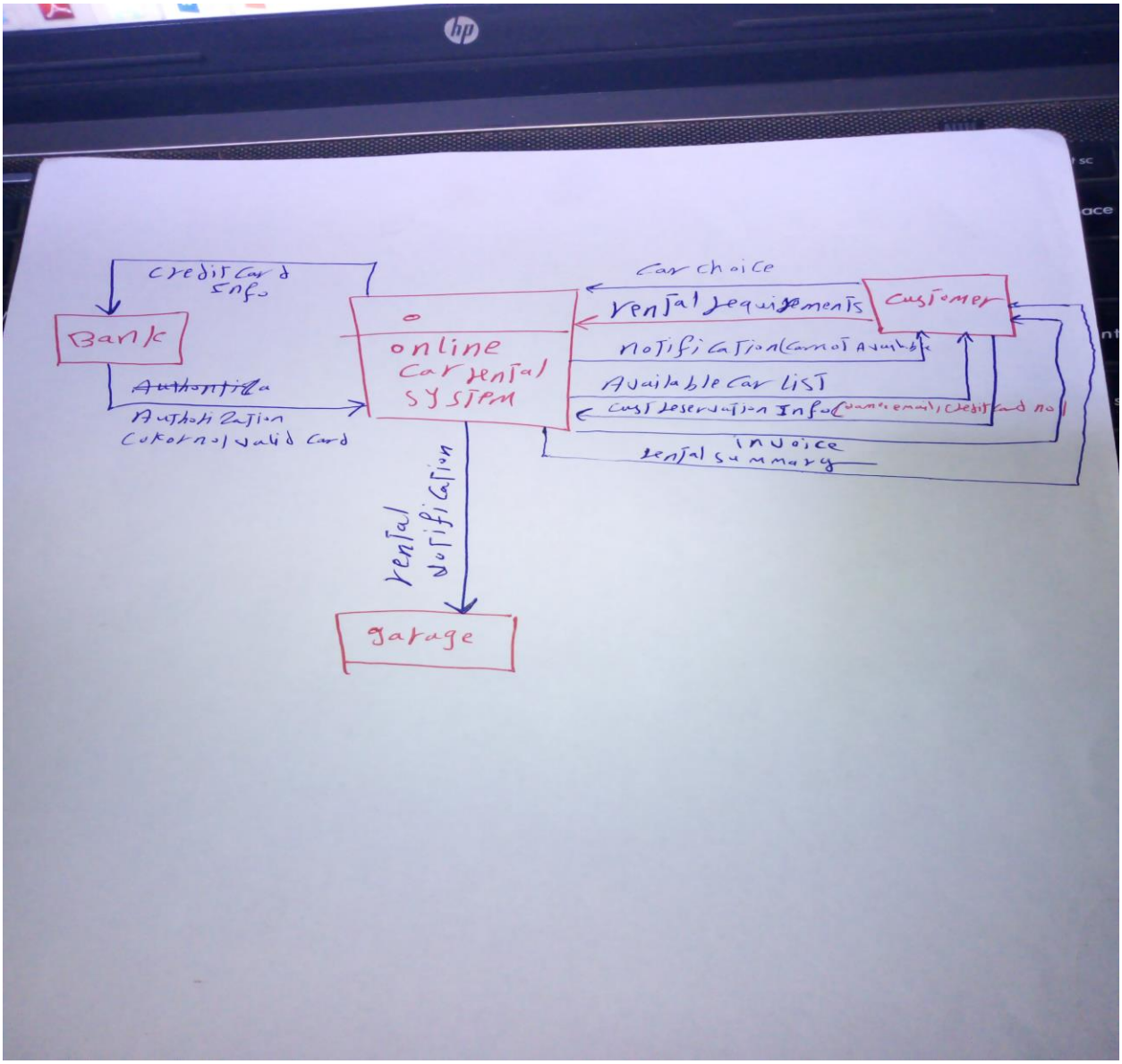
1: check availability of car

2: produce rental summary

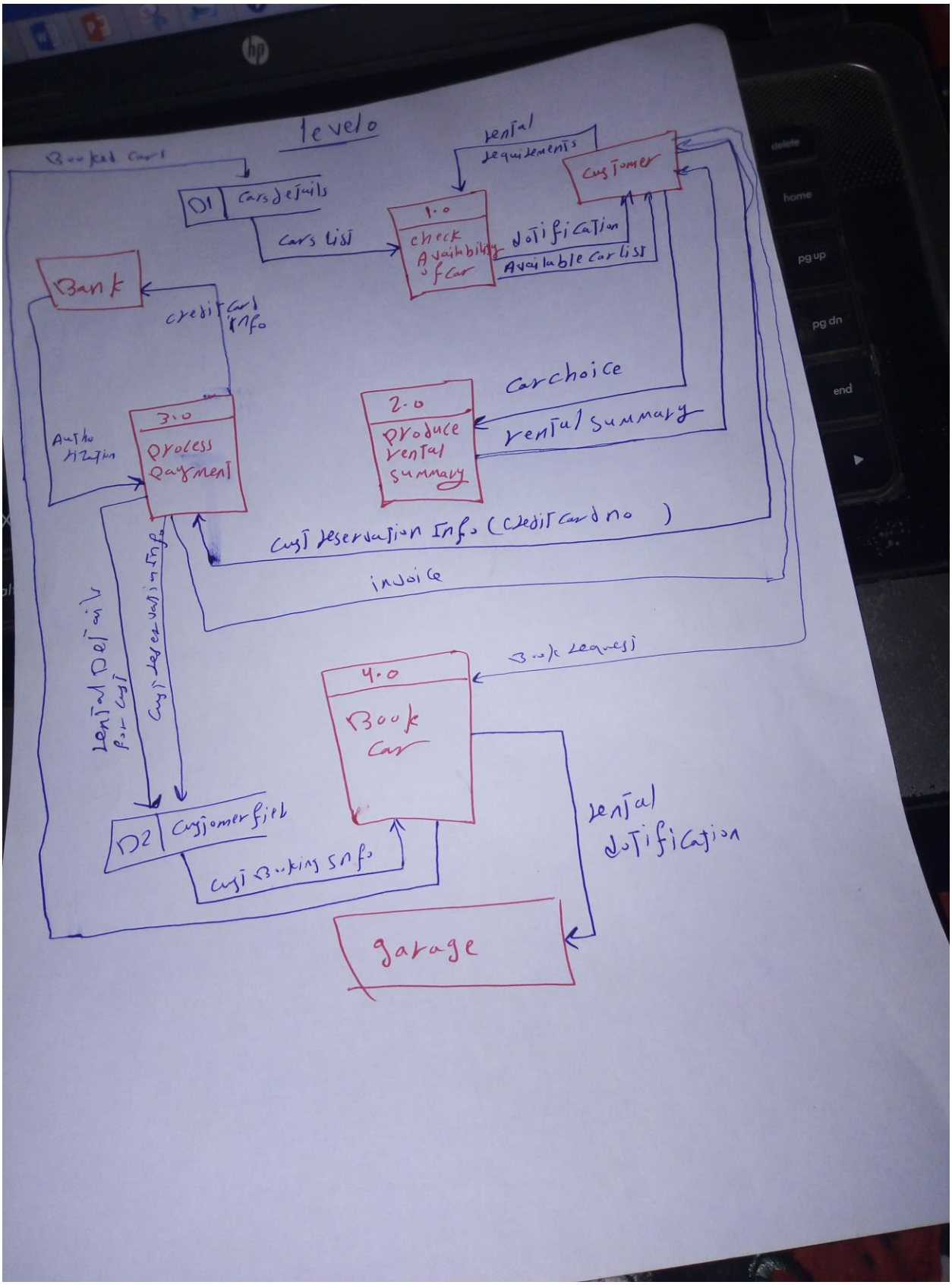
3: process payment

4: book car

Draw context diagram, level0, level 1

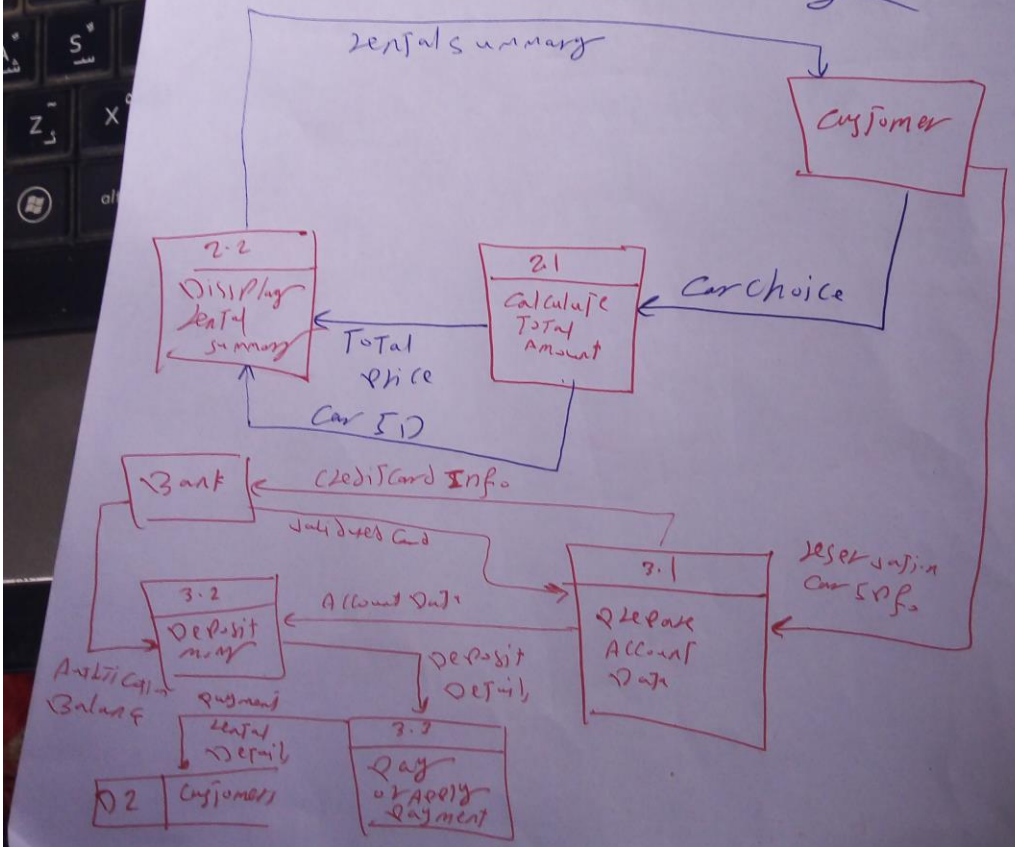


Credit Card Info
Bank
~~Authentica~~
Authorization
Cukor no/valid Card
online car rental system
Car choice
rental requirements
Customer
notification (Cannot Available
Available Car list
cust reservation Info (name, email, credit card no)
invoice
rental summary
rental notification
garage


level 0
Booked Cars
Rental Requirements
Customer
D1
Cars details
1.0
check Availability of Car
Notification
Available car list
Cars List
Bank
credit card info
Carchoice
2.0
produce rental summary
Rental summary
3.0
process payment
Authorization
Cust Reservation Info. (Credit card no)
invoice
Rental Details for Cust
Cust Reservation Info
Book request
4.0
Book Car
D2
Customer file
Cust Booking Info
Rental Notification
garage

level 1

The process of Produce rental summary include Total Price so we need To Calculate The Total Price This process divided into 2 process
⇒ Calculate Total Price , ⇒ Display rental summary
and The process of Payment { ⇒ insert credit card info. ⇒ Deposit Amount & Apply Payment }
and so on Lets Take The example of process Produce rental summary



An airline reservation system is managing online booking ticket for customers.

Customers can do the following:-

1. Search for flights

2. Booking a ticket

3. Canceling a booking

4. Pay and confirm booking (confirmation is done after the

Bank confirm the payment process)

5. Print the ticket after confirmation

The manager of the system uses it for generating reports for

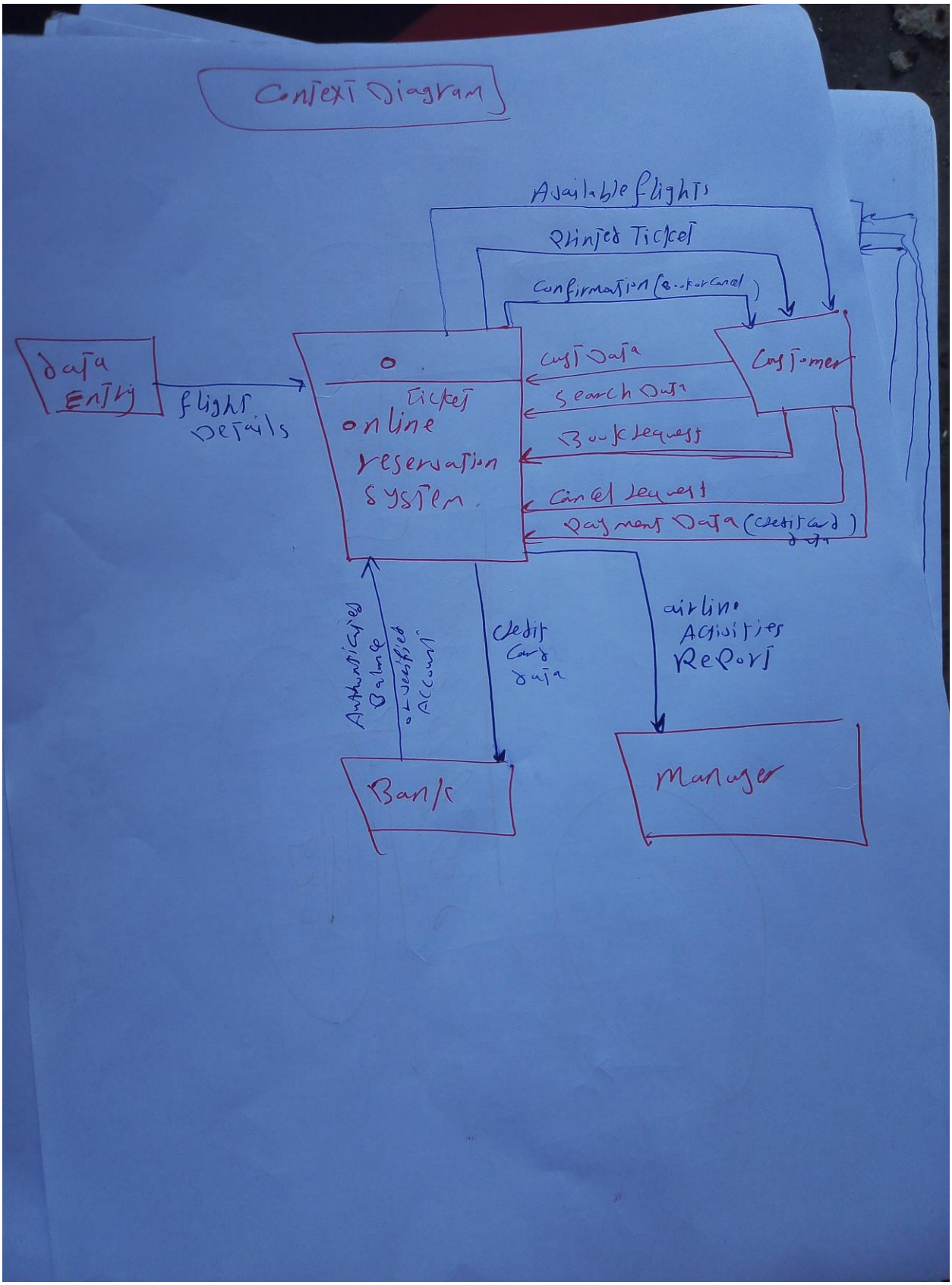
Monitoring the airline activities.

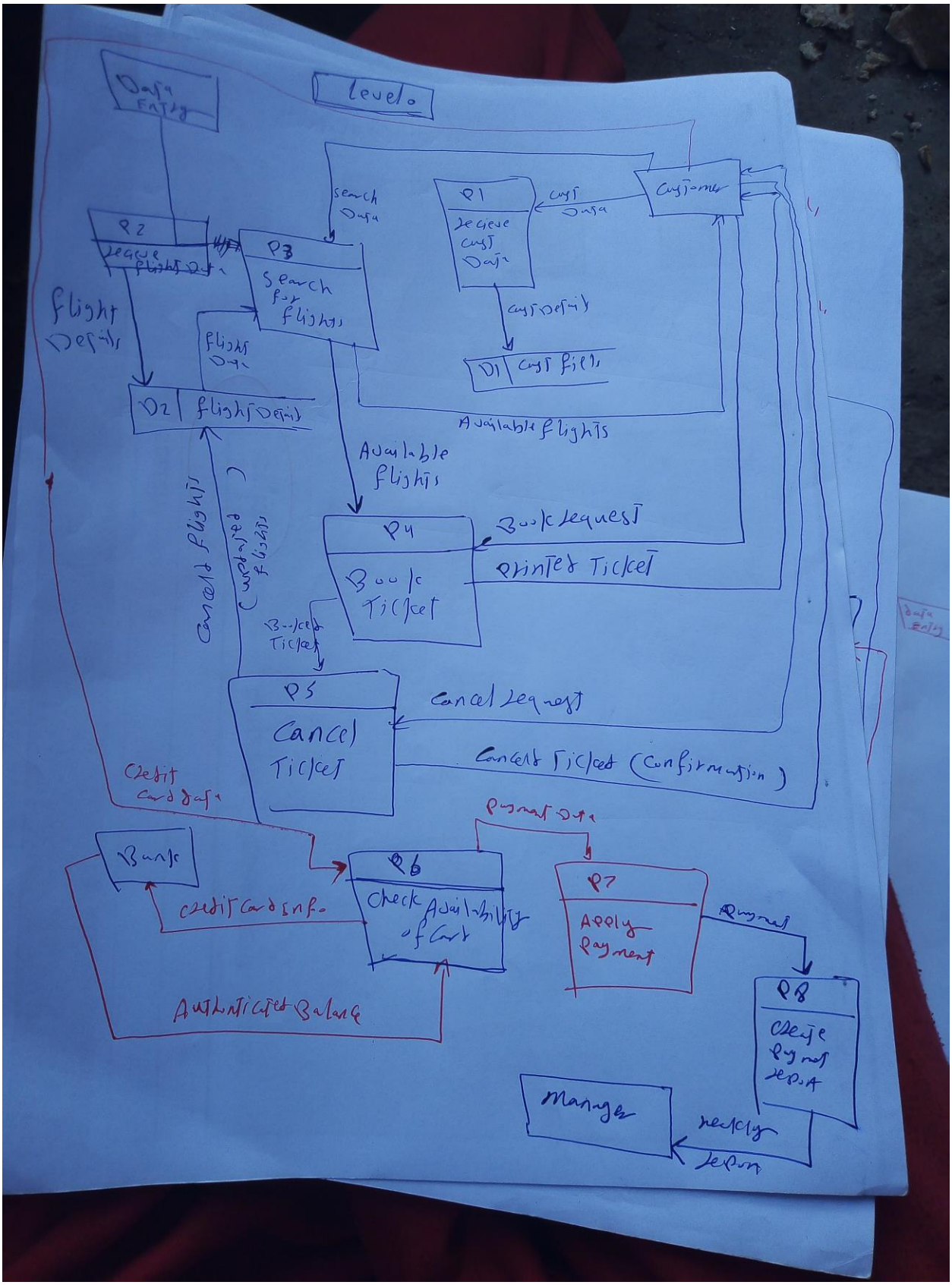
The flights details information is enter by a data entry.

Draw the following DFD

• Context diagram

Construct a context diagram and level0 for this scenario.


Context Diagram
Available flights
Printed Ticket
Confirmation (book or cancel)
Data Entry
flight Details
0
Ticket online reservation System
Cust Data
search Data
Book request
Cancel request
Payment Data (credit card)
Customer
Authorities Bank Verified Account
Credit Card Data
airline Activities Report
Bank
Manager


Data Entry
Level 0
P1
Receive Cust Data
Cust Data
Customer
search Data
P2
P3
Search for flights
Flight Details
Flights Data
D2 Flight Details
D1 Cust Files
Cust Details
Available flights
Available flights
P4
Book Ticket
Book request
Printed Ticket
Booked Ticket
Cancel Flights
(updated flights)
P5
Cancel Ticket
Cancel request
Cancel Ticket (Confirmation)
Credit card data
Payment Data
Bank
P6
Check Availability of Card
credit card info.
Authenticated Balance
P7
Apply Payment
Payment
P8
Close Payment Report
Manager
receive
report

Practice

- The purpose of the campus bookstore is to supply textbooks to students for classes at a local university. The university's academic departments submit initial data about courses, instructors, textbooks, and projected enrollments to the bookstore on a textbook master list. The bookstore generates a purchase order, which is sent to publishing companies supplying textbooks. Book orders arrive at the bookstore accompanied by a packing slip, which is checked and verified by the receiving department. Students fill out a book request that includes course information. When they pay for their books, the students are given a sales receipt.

Practice

Your client, Econ MiniBank, requests for a simple Automatic Teller Machine (ATM) system with the following requirements:

The system must be able to accept a customer's ATM card via a card reader and validate the account number using an account numbers file. The customer's transaction information, on the other hand, is entered via a key panel and also validated by the system. For valid account holders issuing valid transactions, the system determines the transaction type, which can be one of the following : display of account statement, hardcopy of account statement, cash transfers and requests for cheque book.

Transaction information would therefore include items like the customer's request (transaction type), cash transfer amount, and transferee's account number.

For account statement requests, the system retrieves the account information from a customer database and formats the information accordingly depending on whether a hardcopy or display is requested. For cash transfer requests, the cash amount and transferee's account number must be specified. Finally, for cheek book requests, the system uses a valid account number to determine

the collection center and collection date from a collection schedule log and prints a collection slip for the customer.