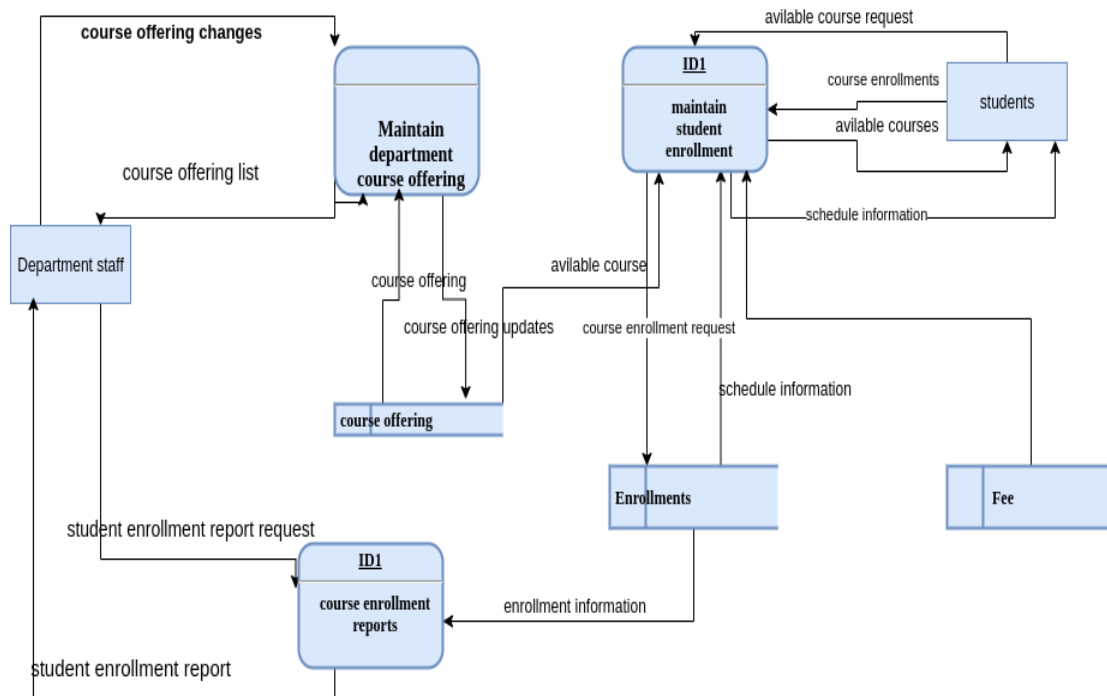1. The system should enable the staff of each academic department to examine the course offered by their department, add and remove course, and change the information about them (e.g., the maximum number of students). It should permit students to examine currently available courses, add and drop courses to and from their schedules, and examine the course for which they are enrolled. Department staff should be able to print a variety of reports about the courses and the students enrolled in them. They system should ensure that no student takes too many course and that students who have any unpaid fees are not permitted to register. (Assume that a fees data store is maintained by the university's financial office that the registration system accesses but does not change.)
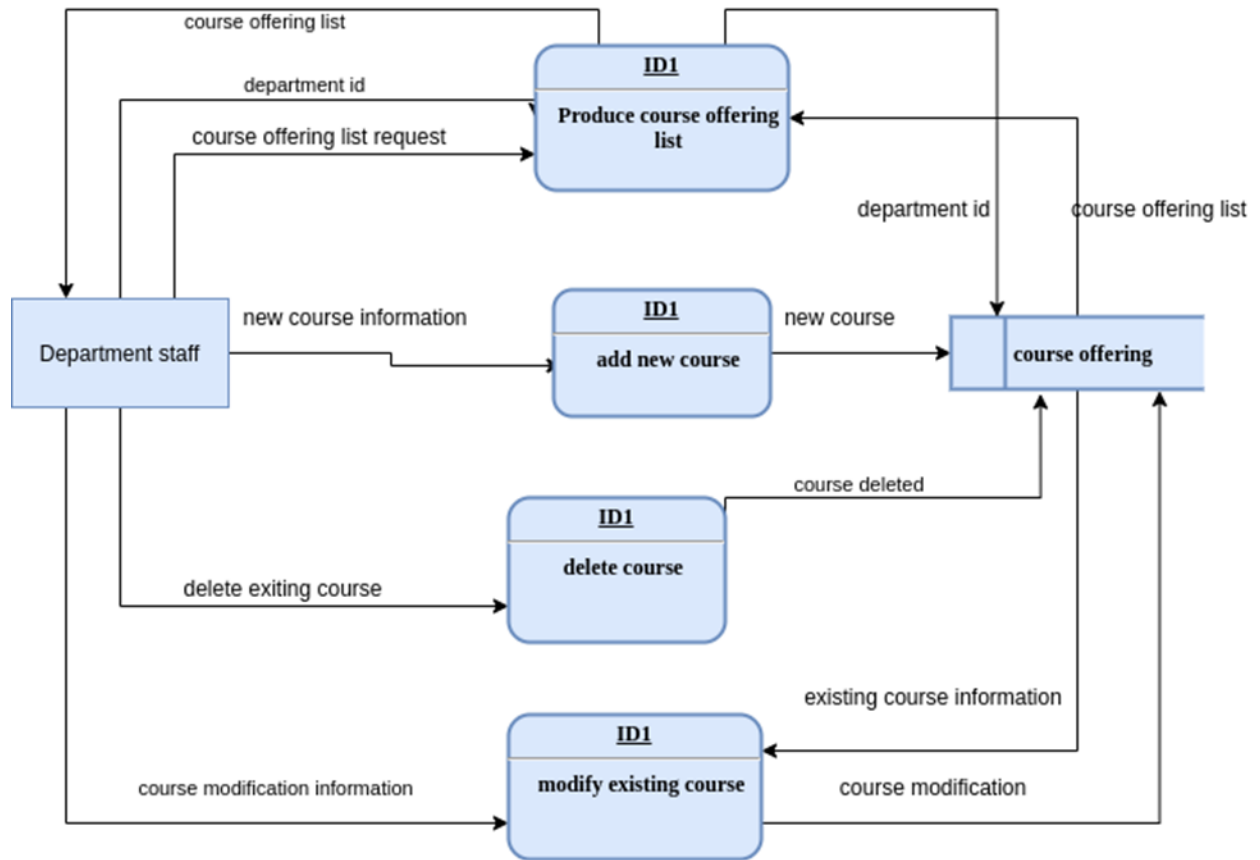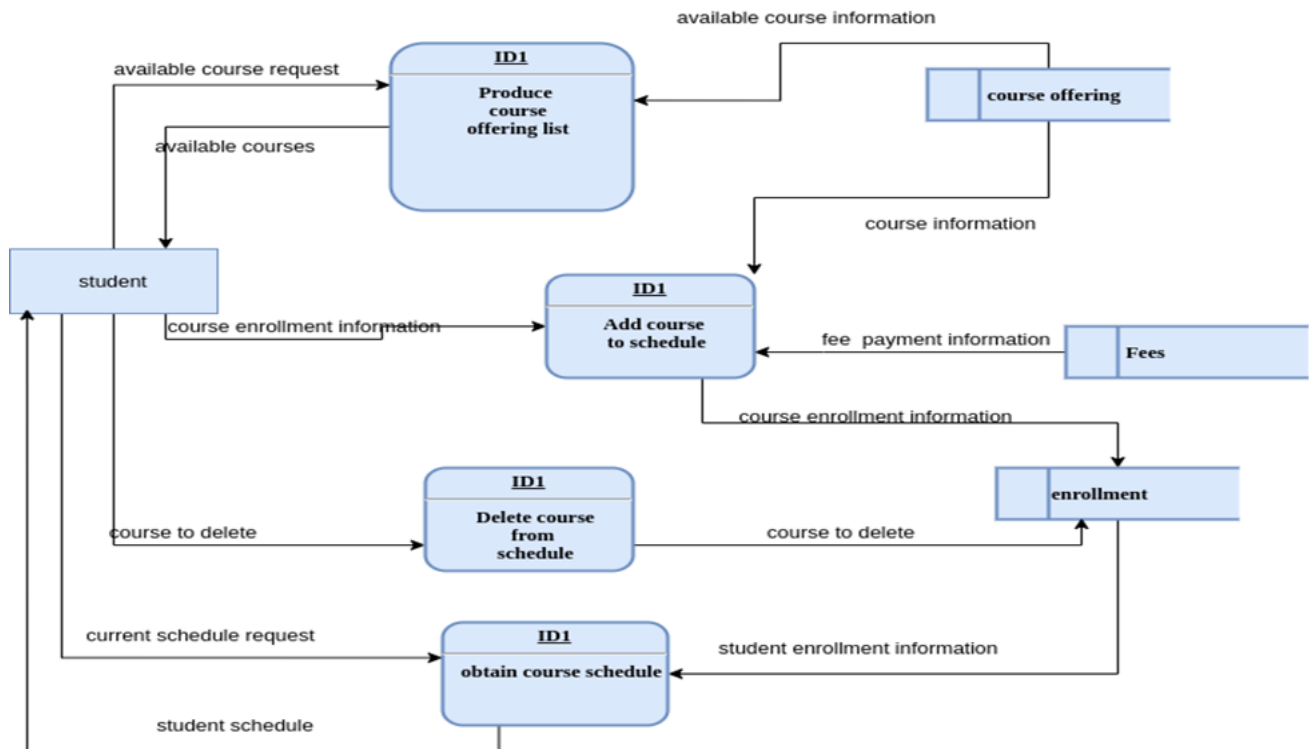
Ans:

Context diagram done in class:

Level 1 DFD

Level 2 DFD (maintain department course offering)

course offering list

ID1

Produce course offering list

department id

course offering list request

department id

course offering list

Department staff

new course information

ID1

add new course

new course

course offering

course deleted

ID1

delete course

delete exiting course

existing course information

ID1

modify existing course

course modification information

course modification

Level 2 DFD (maintain student enrolment)

available course information

available course request

ID1
Produce course offering list

course offering

available courses

course information

student

course enrollment information

ID1
Add course to schedule

fee payment information

Fees

course enrollment information

enrollment

ID1
Delete course from schedule

course to delete

course to delete

current schedule request

ID1
obtain course schedule

student enrollment information

student schedule

Level 2 DFD (course enrolment report)

\

ID1
obtain report type

course offering information

report request

report type

course offering

department staff

ID1
generate requested report

enrollment

requested report

enrollment information

2.A Real Estate Inc. (AREI) sells houses. People who want to sell their houses sign a contract with AREI and provide information on their house. This information is kept in a database by AREI and a subset of this information is sent to the citywide multiple-listing service used by all real estate agents. AREI works with two types of potential buyers. Some buyers have an interest in one specific house. In this case, AREI prints information from its database, which the real estate agent uses to help show the house to the buyer (a process beyond the scope of the system to be modeled). Other buyers seek AREI's advice in finding a house that meets their needs. In this case, the buyer completes a buyer information form that is entered into a buyer database, and AREI real estate agents use its information to search AREI's database and the multiple-listing service for houses that meet their needs. The results of these searches are printed and used to help the real estate agent show houses to the buyer.
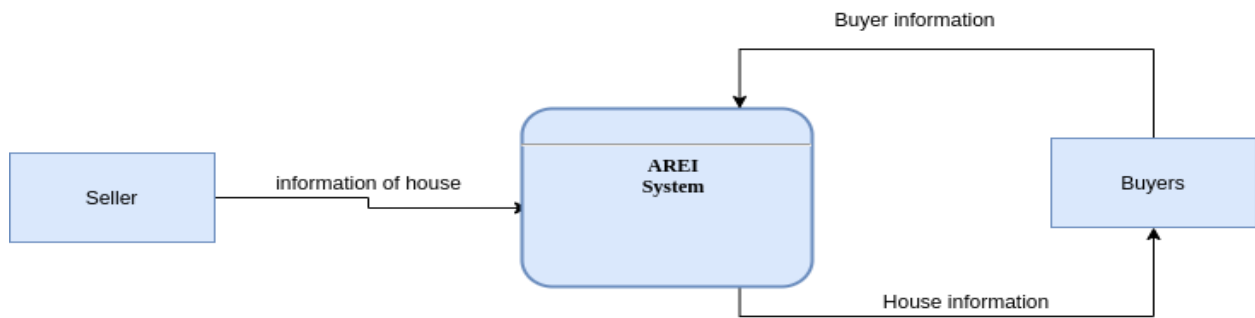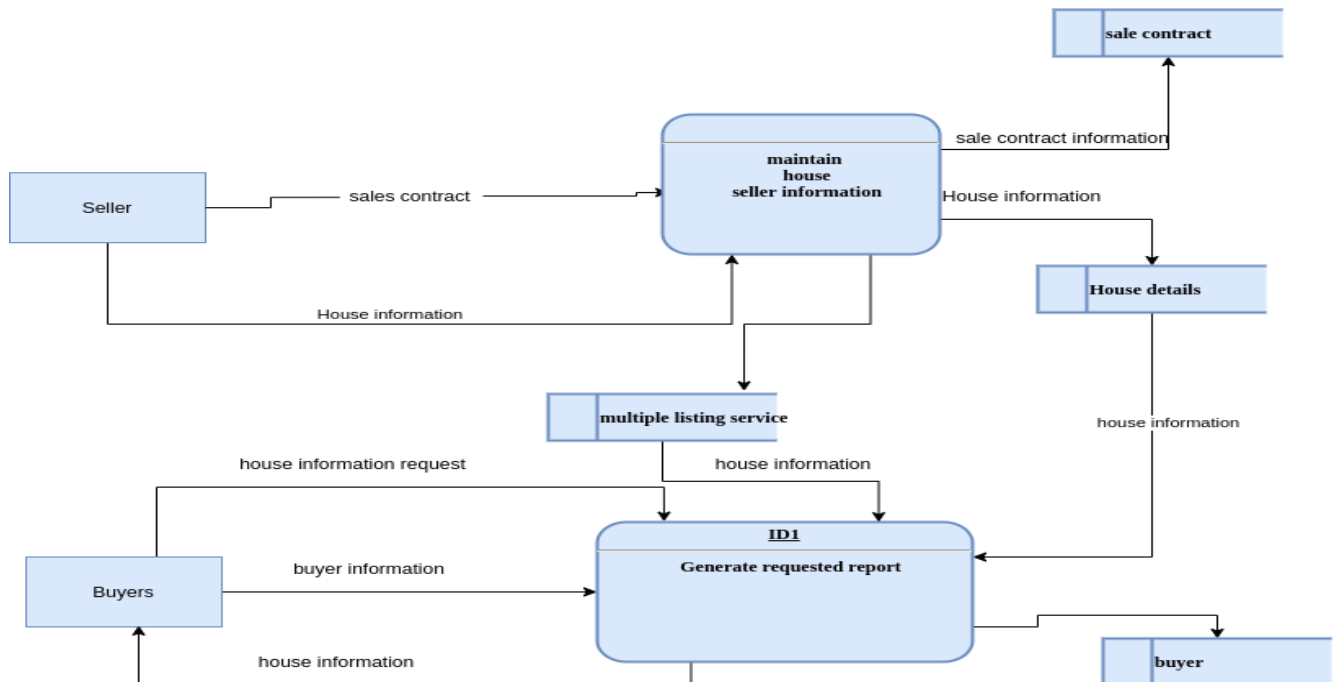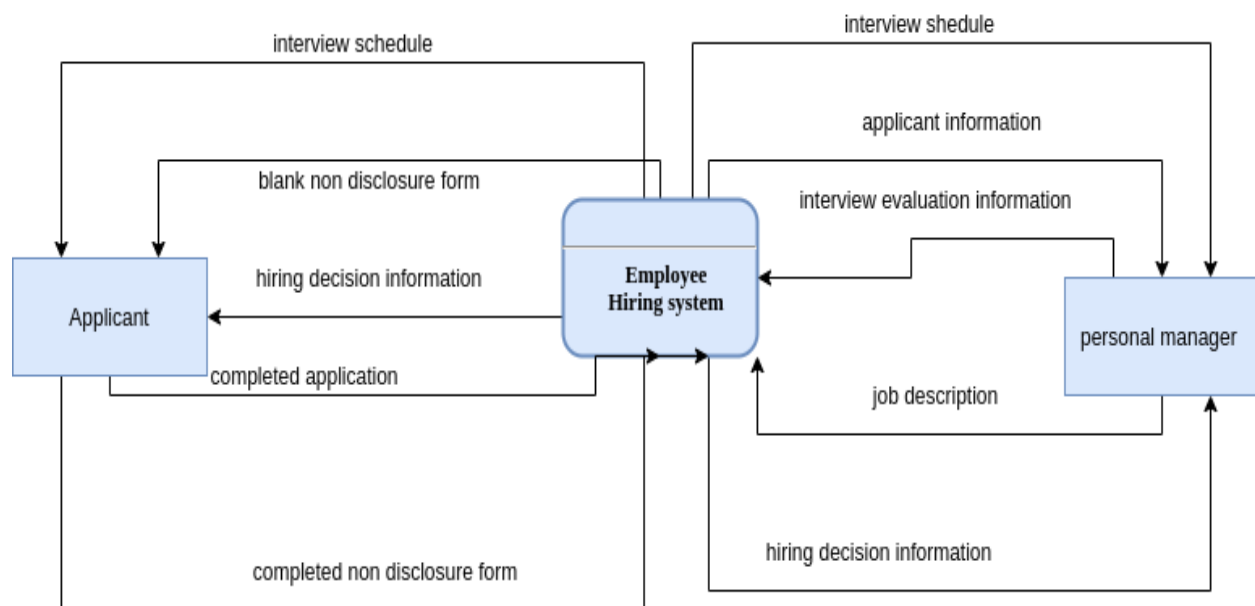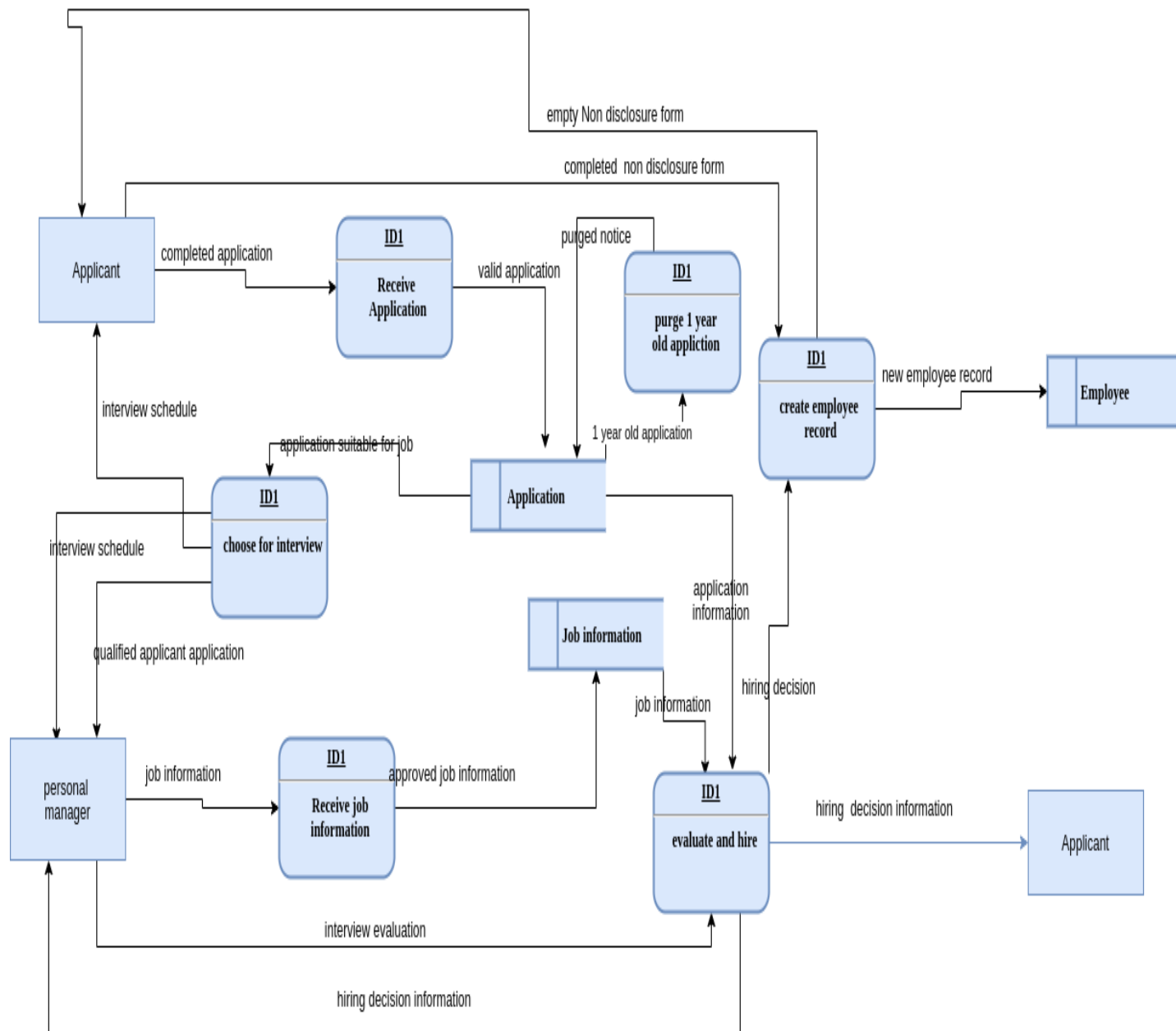
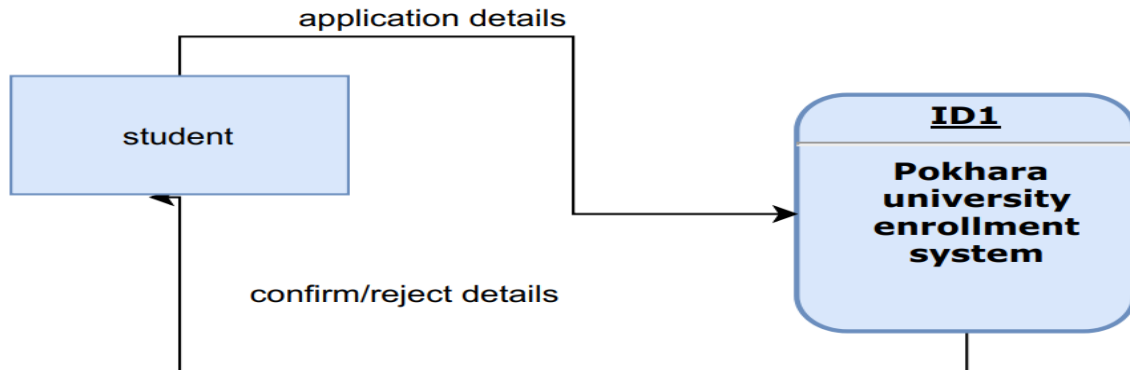

Fig: context diagram

Level 1 DFD

3. Projects, Inc., is an engineering firm with approximately 500 engineers of different types. The following are the basic processes of Employee Hiring System • Applicants may apply at any time. The system i.e. Personnel Manager checks to see if the applications are valid. If the applications are valid, it will be stored in the applications file. Engineering managers notify the personnel manager when a job opens with the job description, list the characteristics necessary to be eligible for the job. • The personnel manager compares the qualifications of the available pool of applicants with the job description of an open job and then schedules interviews between the manager in charge of the open position and the three best candidates from the pool. After receiving evaluations on each interview from the manager, the personnel manager makes the hiring decision based upon the evaluations and applications of the candidates and the job description of the job and then notifies the interviewees and the manager about the decision. • Applications of rejected applicants are retained for one year, after which time the application is purged. When hired, a new engineer completes a nondisclosure agreement, which is filed with other information about the employee. Based on the scenario above: a. Draw a Context Diagram for Employee Hiring System. Draw a Data Flow Diagram (level 1) for the application with general processes, data stores, data flows.
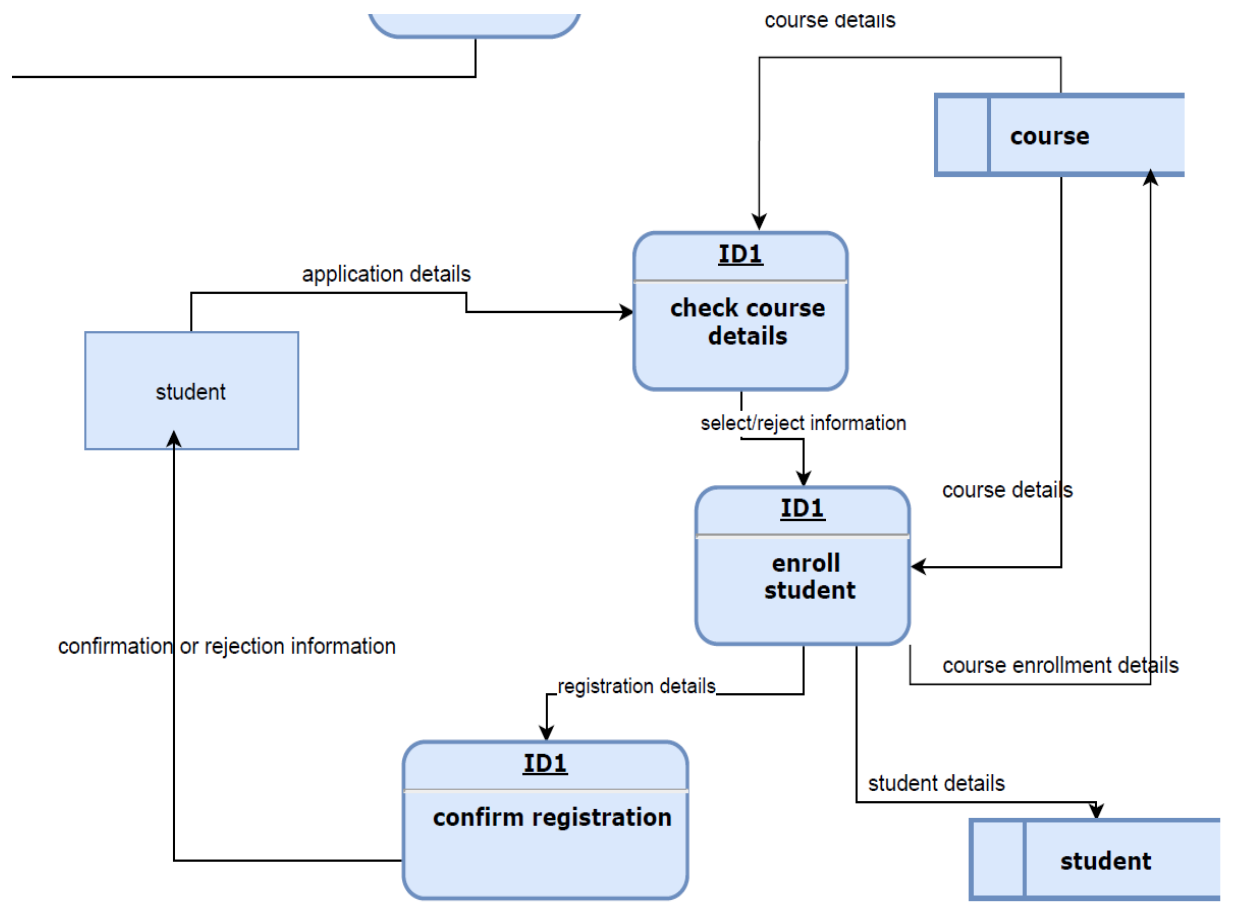

Context diagram

Applicant → completed application → **ID1 Receive Application** → valid application → **Application**

empty Non disclosure form

completed non disclosure form

ID1 purge 1 year old appliction

purged notice

1 year old application

ID1 create employee record → new employee record → **Employee**

interview schedule

application suitable for job

ID1 choose for interview

interview schedule

qualified applicant application

Job information

job information

application information

hiring decision

personal manager → job information → **ID1 Receive job information** → approved job information

ID1 evaluate and hire → hiring decision information → **Applicant**

interview evaluation

hiring decision information
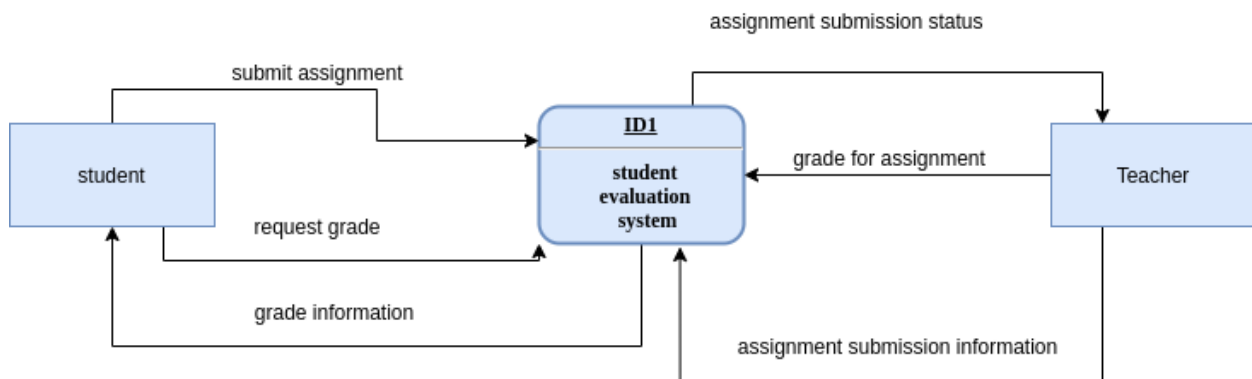
Draw the data flow diagram for enrollment in Pokhara university

Context diagram

Level 1 DFD

Draw a DFD for student evaluation system.

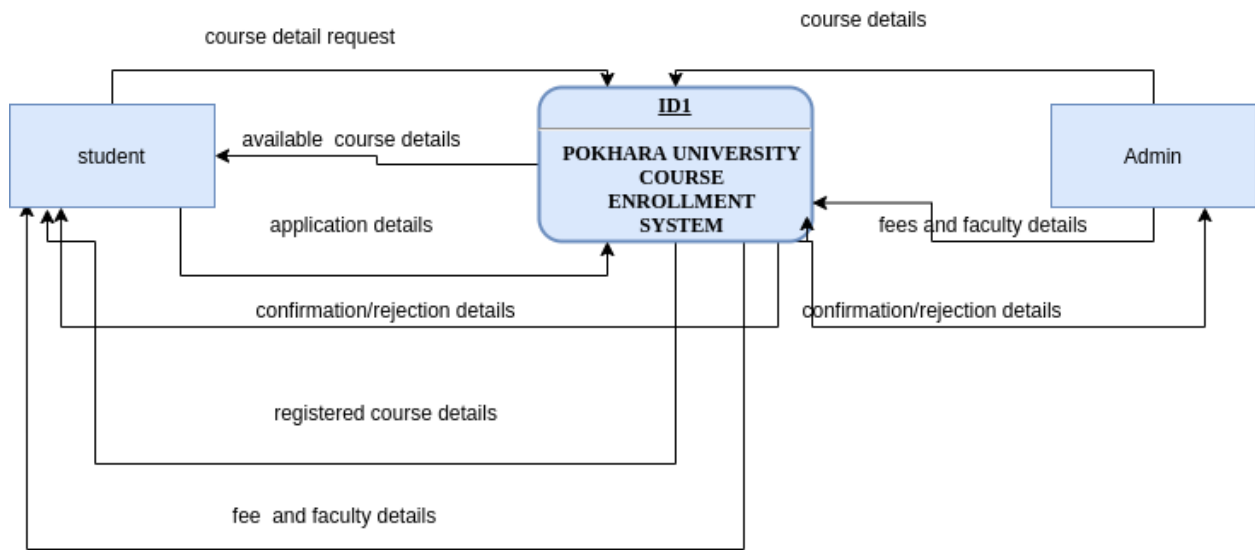assignment submission status

submit assignment

ID1

student

**student
evaluation
system**

grade for assignment

Teacher

request grade

grade information

assignment submission information

Context diagram

submit assignment

ID1

submit assignment

assignment

student

student

Assignment

grade information

grade request

assignment submission status

ID1

**view
assignment
status**

assignment information

assignment submission information

ID1

teacher

**view
grade**

grade assignment

ID1

grade submitted work

assignment information

grade information

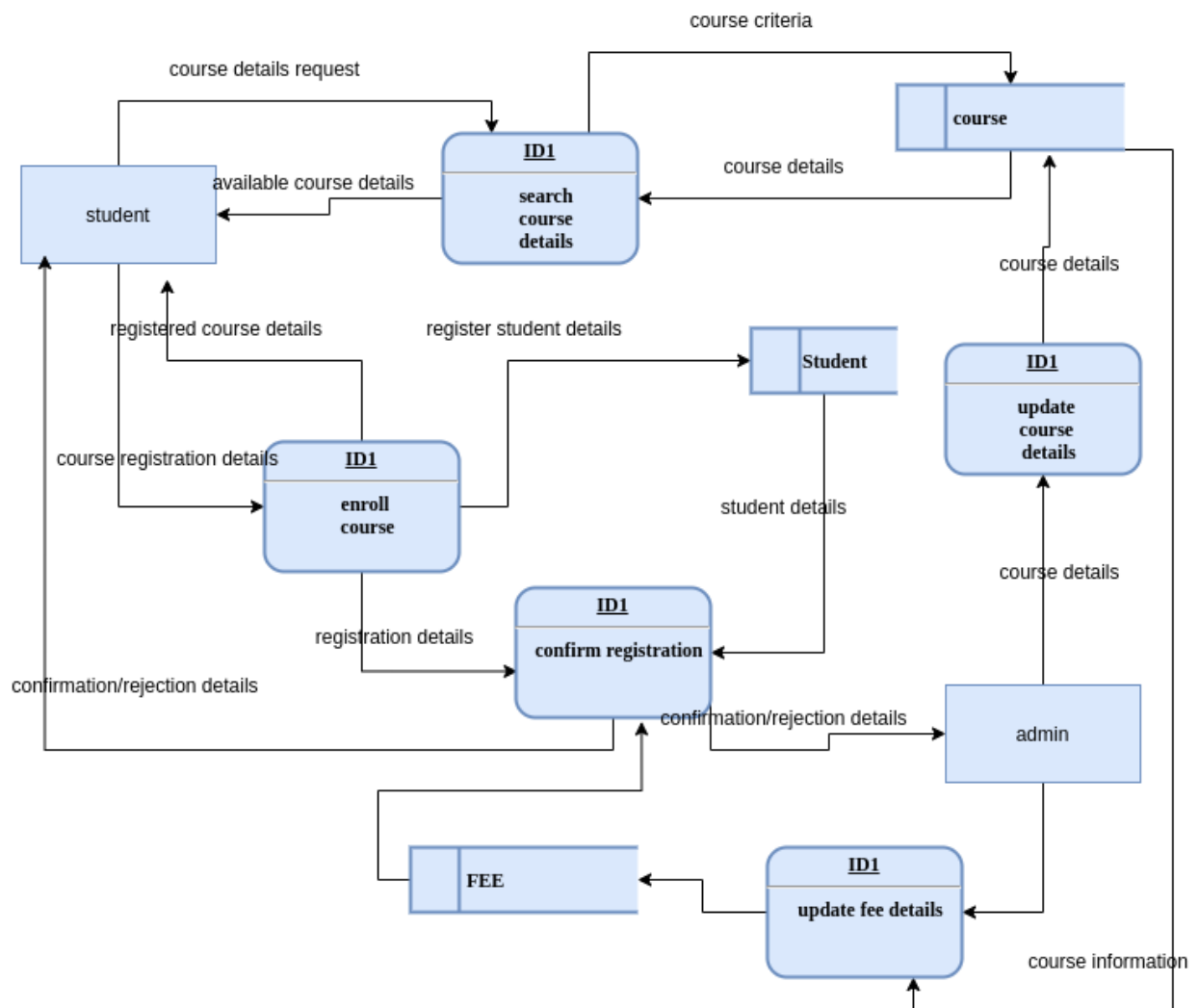grade information

grade

Level 1 DFD
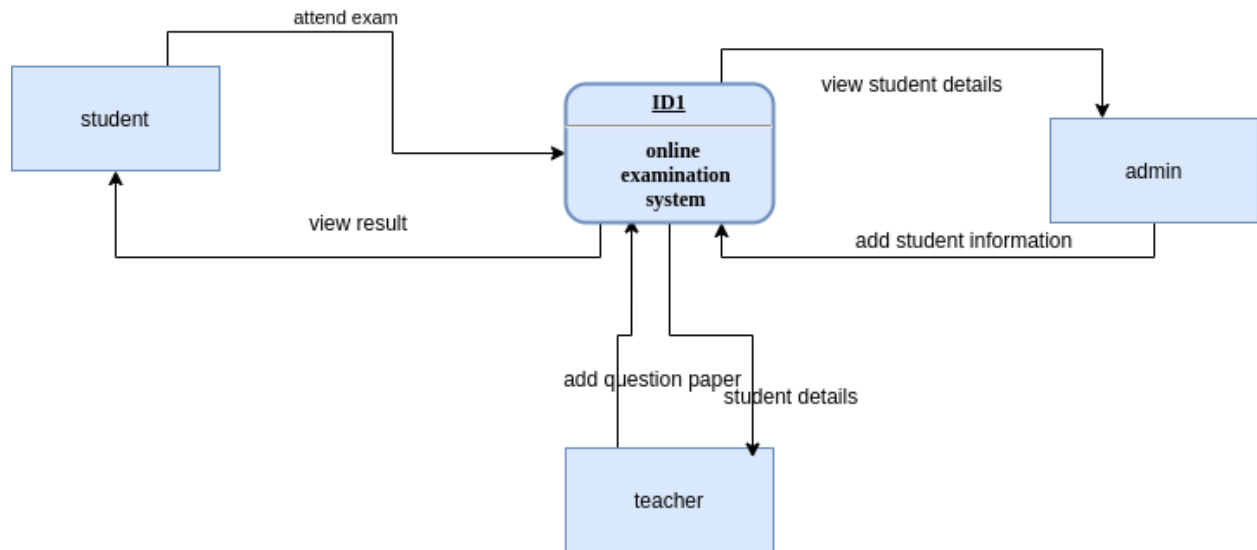
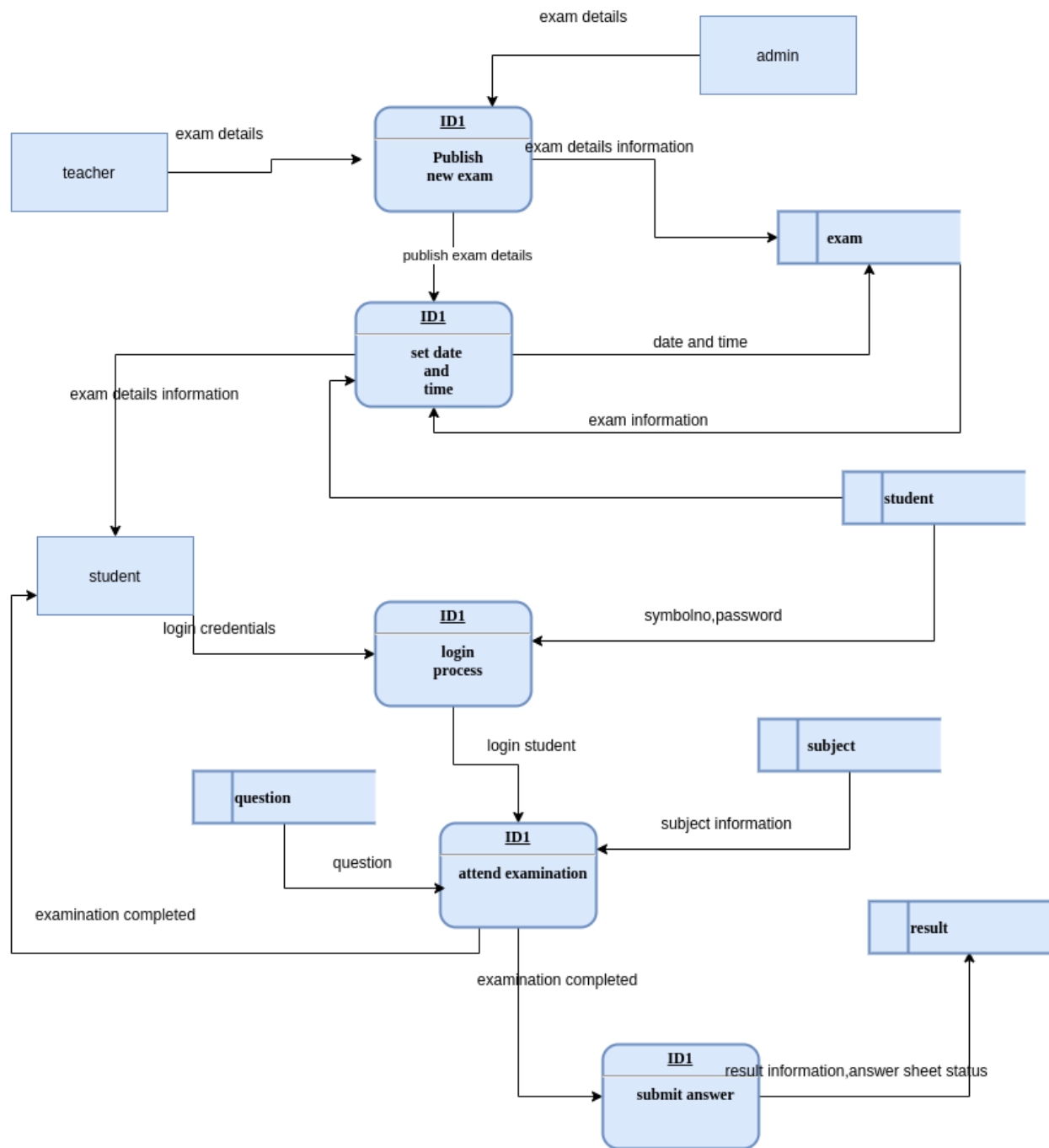**Enrollment in University (alternatively)**

Context diagram

Level 1 DFD

Online examination system:

Context diagram

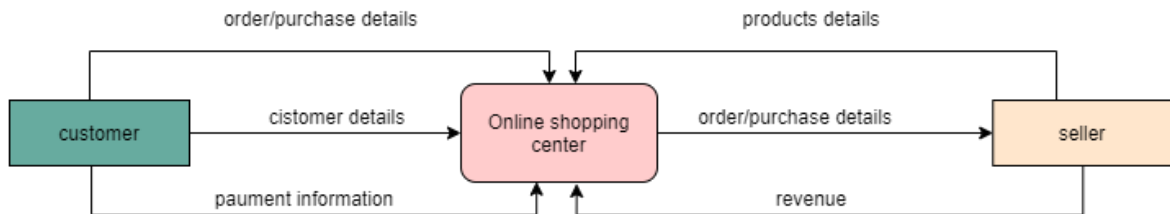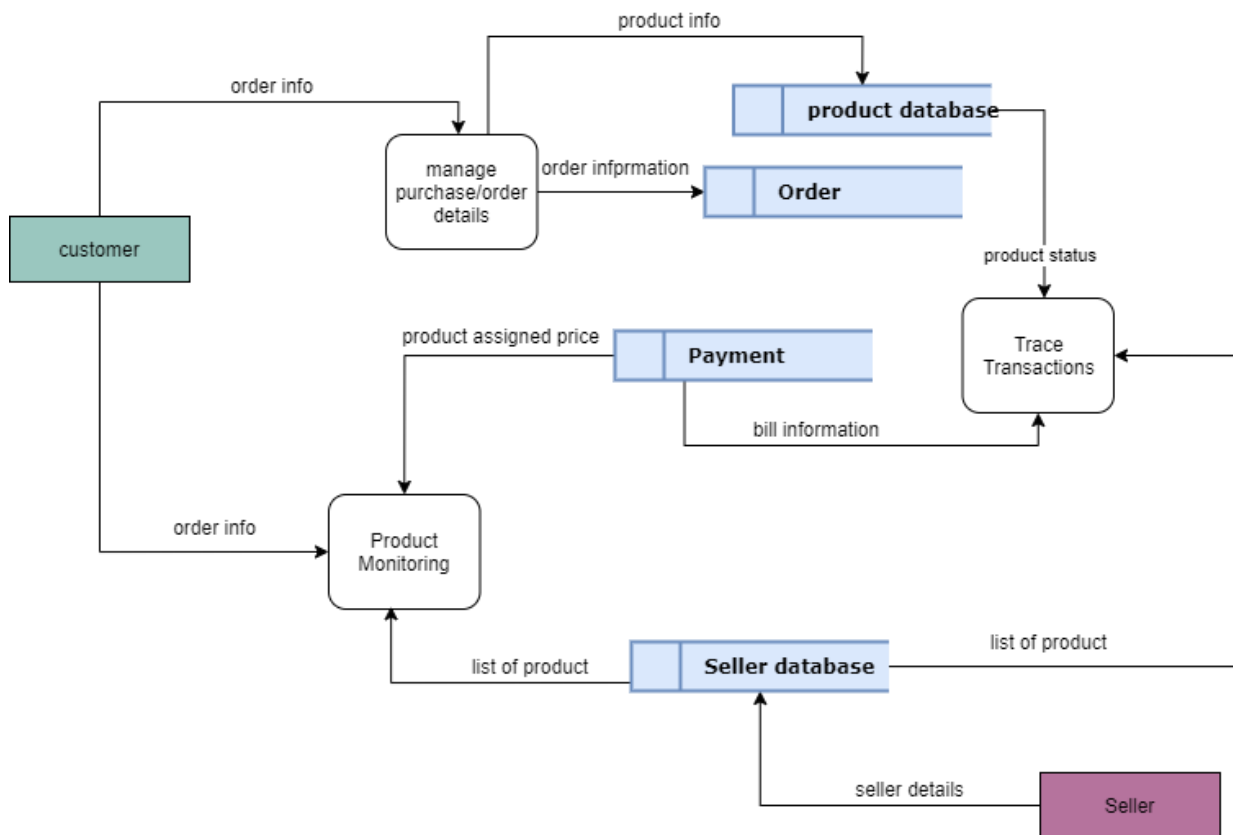Level 1 DFD

Draw a DFD for online shopping center.

↳ Ans:
Context Diagram

order/purchase details   products details

customer → cistomer details → Online shopping center → order/purchase details → seller

payment information   revenue

Level 1 Diagram

product info

order info

product database

manage purchase/order details → order infprmation → Order

customer

product status

product assigned price → Payment → Trace Transactions

bill information

order info → Product Monitoring

list of product ← Seller database → list of product

seller details ← Seller
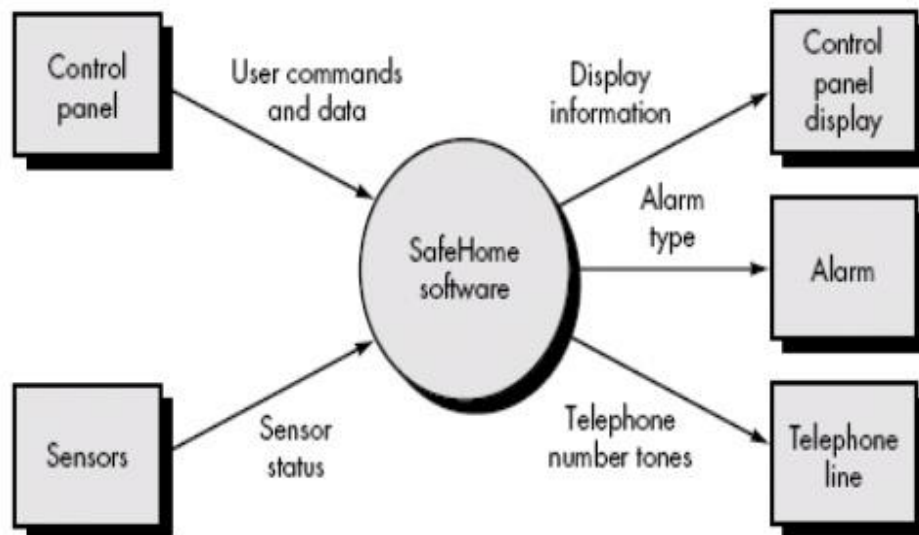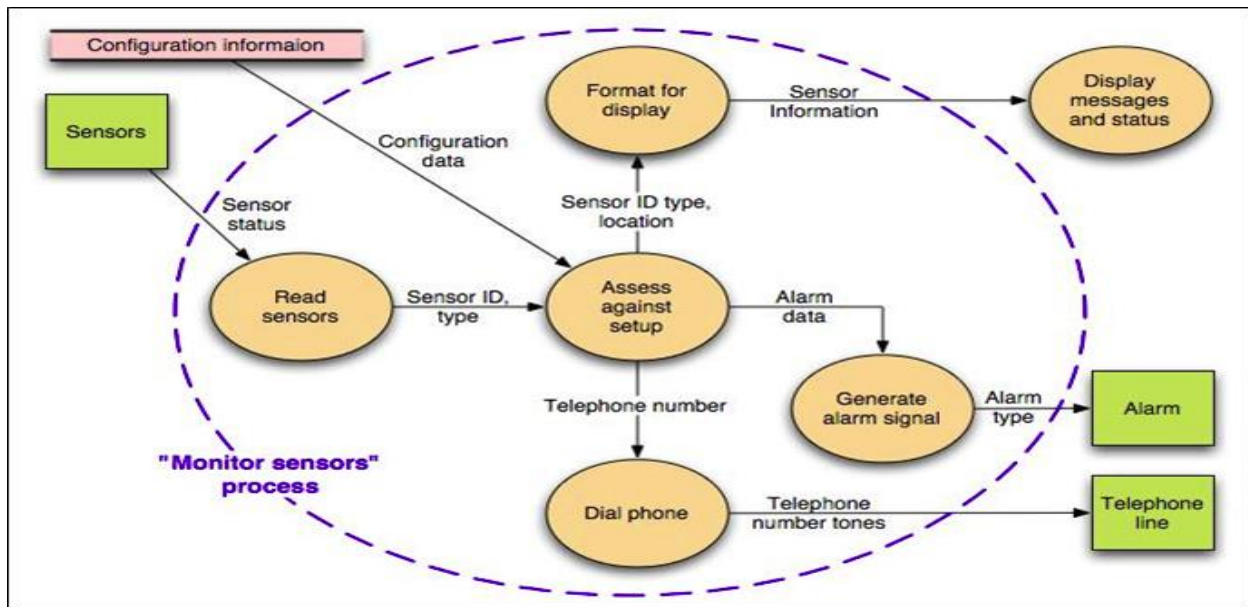
The SafeHome security function enables the homeowner to configure the security system when it is installed, monitors all sensors connected to the security system, and interacts with the homeowner through the Internet, a PC, or a control panel. During installation, the SafeHome PC is used to program and configure the system. Each sensor is assigned a number and type, a master password is programmed for arming and disarming the system, and telephone number(s) are input for dialing when a sensor event occurs. When a sensor event is recognized, the software invokes an audible alarm attached to the system. After a delay time that is specified by the homeowner during system configuration activities, the software dials a telephone number of a monitoring service, provides information about the location, reporting the nature of the event that has been detected. The telephone number will be redialed every 20 seconds until a telephone connection is obtained. The homeowner receives security information via a control panel, the PC, or a browser, collectively called an interface. The interface displays prompting messages and system status information on the control panel, the PC, or the browser window.
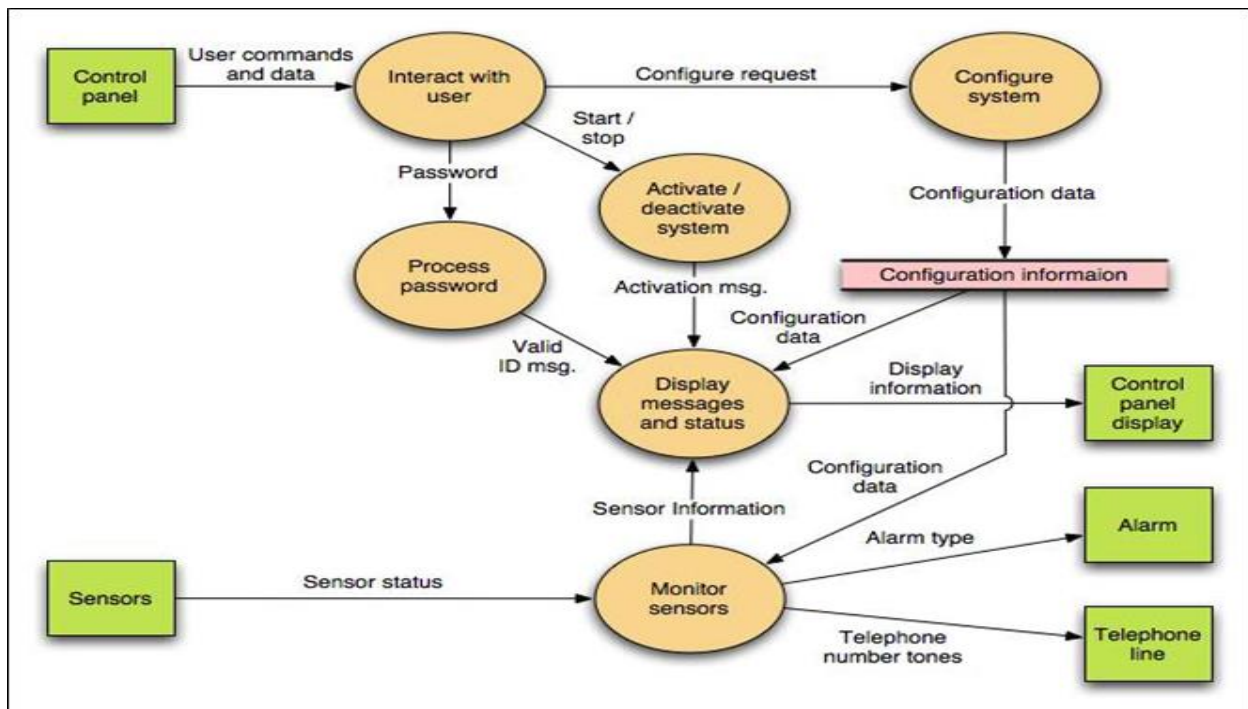

Context diagram

Level 1 DFD

Level 2 DFD

• Online hotel reservation system(Use case)

• When making a reservation a customer must register his/her personal information to speed up the process details of the customers will stored and made available later by this system customer can make reservation and cancel it when making a reservation the customer can choose a number of room, its type and services(laundry, meal and transportation)the reservation is conformed when customer pays 10% of total charges after reservation a customer will get email of details reservation

• Within a hotel there is a reservation administrator who is responsible for controlling reservation at the hotel. Now identify all use case and actors and draw a use case diagram.

Online Hotel reservation

- register his/her information
- store personal information <<extend>>
- customer
- cancel reservation
- make reservation
- choose no of room <<extend>>
- choose type of room <<extend>>
- choose services <<extend>>
- choose loundry service <<extend>>
- choose transporation <<extend>>
- choose meal <<extend>>
- conform reservation
- pay 10% <<include>>
- reservation administrator
- get email conformation <<extend>>
- control reservatation