CAYM Education Trust's
SIDDHANT INSTITUTE OF COMPUTER APPLICATION
(Approved by AICTE New Delhi,Goverment of Maharashtra Recognised Savitribai Phule Pune University)
Add:At post-Sudumbare,Tal-Maval,Dist-Pune-412109,Ph:02114-661992
Email: siddhantica1@gmail.com Website: www.siddhantica.in

Problem Solving Methodologies

Students gain and enhance their problem-solving skills through engaging in the following activities:

Sr. No.	Details
1	Mini Project
2	Course tutorials based on Problems
3	Presentations on course topics

1. Mini Project

Academic projects are student projects carried out as part of their course degree. Final-year student's dissertations are submitted as a part of the academic curriculum.

Course Code: ITC41

Course Name: Project

Credit Scheme			Evaluation Scheme				
Lecture	Practical	Credit	Internal			External	Total
			Written	Practical	Tutorial		
-	40 Hrs./Week	22	-	300	-	250	550

Course Description:

A project is an assignment that the student needs to complete at the end of semester IV to strengthen the understanding of fundamentals through effective application of the subjects learnt.

Course Outcomes:
Student will be able to

CO1: Create working project using tools and techniques learnt in the programme (Create)

Course Structure:

The project is an outcome of technical skills and domain knowledge acquired by the students during the program. Students demonstrate problem solving skills, analytical ability, logical thinking, communication skills and team work during the course of the project. The project can be implementation of a research work published in any reputed journal.

1. The project may be done individually or in groups. However, if project is done in groups, each student must be given a responsibility for distinct modules.
2. Selected project/module must have relevant scope as per the marks assigned and can be carried out in the Institute or outside with prior permission of the Institute.
3. Internal guide should monitor and evaluate the progress of the project on individual basis through handwritten workbook maintained by students containing various project milestones with learning's and remarks from internal guide for concurrent evaluation.
4. The Semester IV project should be having sufficient scope for 400 marks. The project work will carry 300 marks for internal assessment and 250 marks for external assessment.
5. Students are expected to show working demo of the project during final evaluation in semester IV.
6. The project report should be prepared as per the University prescribed format with all the chapters mentioned in project guidelines. And it should be printed on back-to-back pages (one copy) which should be signed by the internal guide and the Director of the Institute. A client (colleges, Non IT organization, and IT organization) certificate should be attached to prove the authenticity of the project work done.
7. The project will be assessed internally as well as externally by the examiners appointed by the institutions and University.

Type of Projects

1. Application Development

The students are advised to choose a project that involves window-based development, web-based development, mobile-based development, projects based on machine learning. Analysis and interpretation of any company specific data is not permitted.

2. Embedded Systems / IoT

A project should be developed and implemented for application specific system after thorough investigation of the latest development in the field of electronics or communication to facilitate their efficient operation. The Real Time Operating System (RTOS) or open source platform can be used to develop embedded applications such as Robotics, Microcontroller / Microprocessor based projects

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etc. An IOT project can be used to design products for reliability and security using simple electronics concepts and integrating with a cloud platform to get the data real-time and make some operational analysis. It has to use efficient algorithms for strong authentication and security protocols and disable non-essential services.

Few examples of IoT applications
Smart home, Health care applications, Smart waste management, Activity Tracker etc.

3. ETL Projects

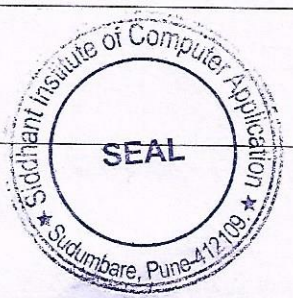
Extract, transform, load (ETL) is the process of integrating the data from one or more sources. It is expected from the student that he should demonstrate the entire ETL process with reference to any domain like finance, banking, insurance, retail etc.
Data extraction consists of extracting the data from homogeneous or heterogeneous sources and transforming it into a proper format using data cleansing. The data can be finally loaded into a final target database such as operational data base, a data mart or data warehouse. This data can be further used for the purpose of querying and analyzing.

4. Research Projects

The research project will be able to demonstrate the skills of working scientifically, and through the project the students will able to understand how to do a literature review, and how to appraise the literature to address questions. To explore an area of interest (develop some expertise and a deeper understanding of a topic). Understand the tools to critically and thoughtfully appraise problems which are faced every day; to learn communicate scientific research in verbal presentations and written form. As an example, the students can identify any problem, by observation or through survey to understand the problem in depth and propose the solution by applying the research methodology.

Guideline for Project Report

Chapter No		Details
1		**Introduction**
	1.1	Company Profile / Institute Profile / Client Profile
	1.2	Abstract
	1.3	Existing System and Need for System
	1.4	Scope of System
	1.5	Operating Environment - Hardware and Software
	1.6	Brief Description of Technology Used Operating systems used (Windows or Unix) RDBMS/No Sql used to build database (mysql/ oracle, Teradata,etc.)



2		**Proposed System**
	2.1	Study of Similar Systems (If required research paper can be included)
	2.2	Feasibility Study
	2.3	Objectives of Proposed System
	2.4	Users of System
3		**Analysis and Design**
	3.1	System Requirements (Functional and Non-Functional requirements)
	3.2	Entity Relationship Diagram (ERD)
	3.3	Table Structure
	3.4	Use Case Diagrams
	3.5	Class Diagram
	3.6	Activity Diagram
	3.7	Deployment Diagram
	3.8	Module Hierarchy Diagram
	3.9	Sample Input and Output Screens (Screens must have valid data. All reports must have at-least 5 valid records.)
4		**Coding**
	4.1	Algorithms
	4.2	Code snippets
5		**Testing**
	5.1	Test Strategy
	5.2	Unit Test Plan
	5.3	Acceptance Test Plan
	5.4	Test Case / Test Script
	5.5	Defect report / Test Log
6		**Limitations of Proposed System**
7		**Proposed Enhancements**
8		**Conclusion**

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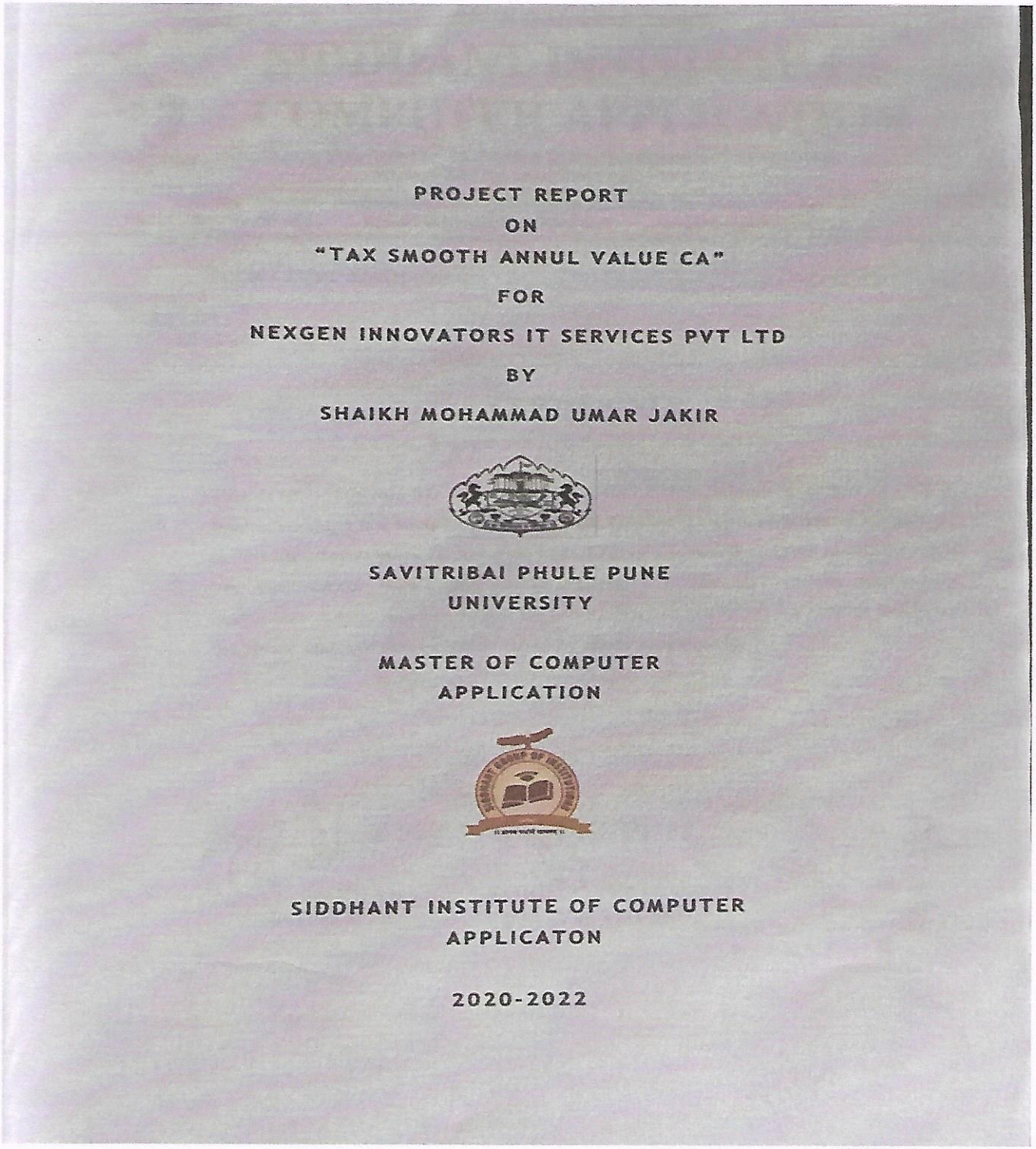
Sample Copy Project Report:



PROJECT REPORT
ON
"TAX SMOOTH ANNUL VALUE CA"
FOR
NEXGEN INNOVATORS IT SERVICES PVT LTD
BY
SHAIKH MOHAMMAD UMAR JAKIR

SAVITRIBAI PHULE PUNE UNIVERSITY

MASTER OF COMPUTER APPLICATION

SIDDHANT INSTITUTE OF COMPUTER APPLICATON

2020-2022

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Tutorials are taken based on following topics

1. Case studies for writing SSR
2. Examples of Use Case Diagram
3. Examples of E-R Diagram
4. Example of Class Diagram
5. Example of Sequence Diagram

Courses with case study based, problem solving using various methodologies, subject teacher has conducted various tutorials. Example is given below:

Course Title: **MT21 Optimization Techniques**

Tutorial 1: Linear Programming

Tutorial 2: Simplex Method & Two Phase Simplex Method

Tutorial 3: PERT and CPM

Tutorial 4: Game Theory

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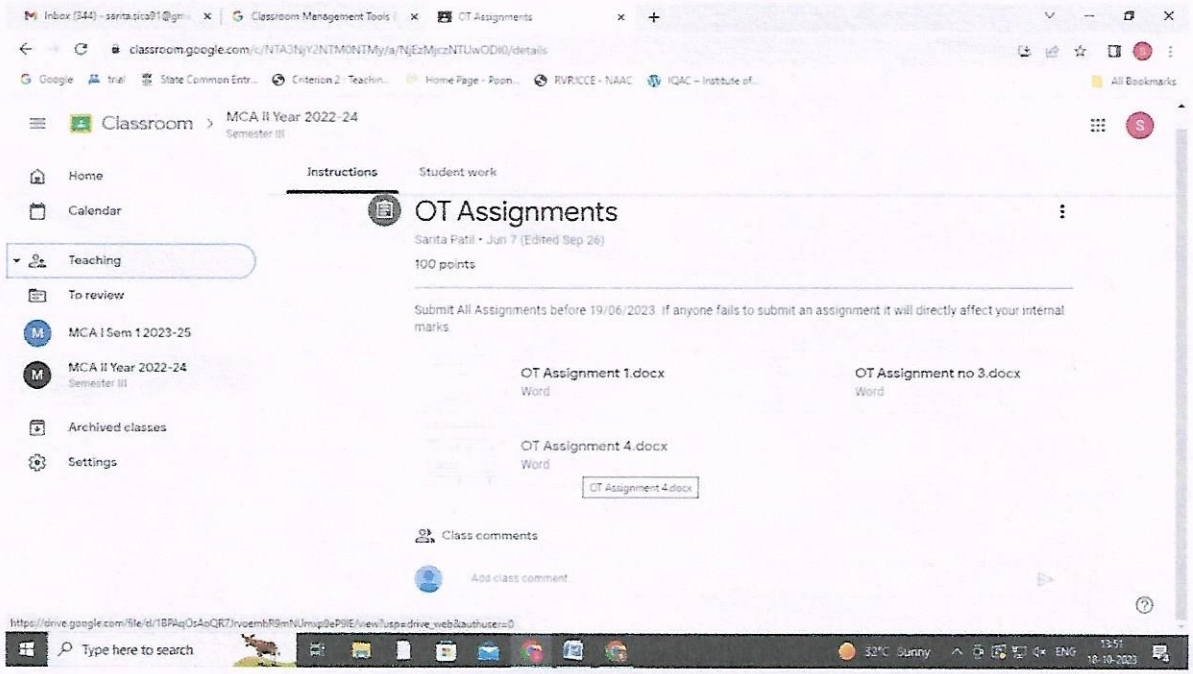
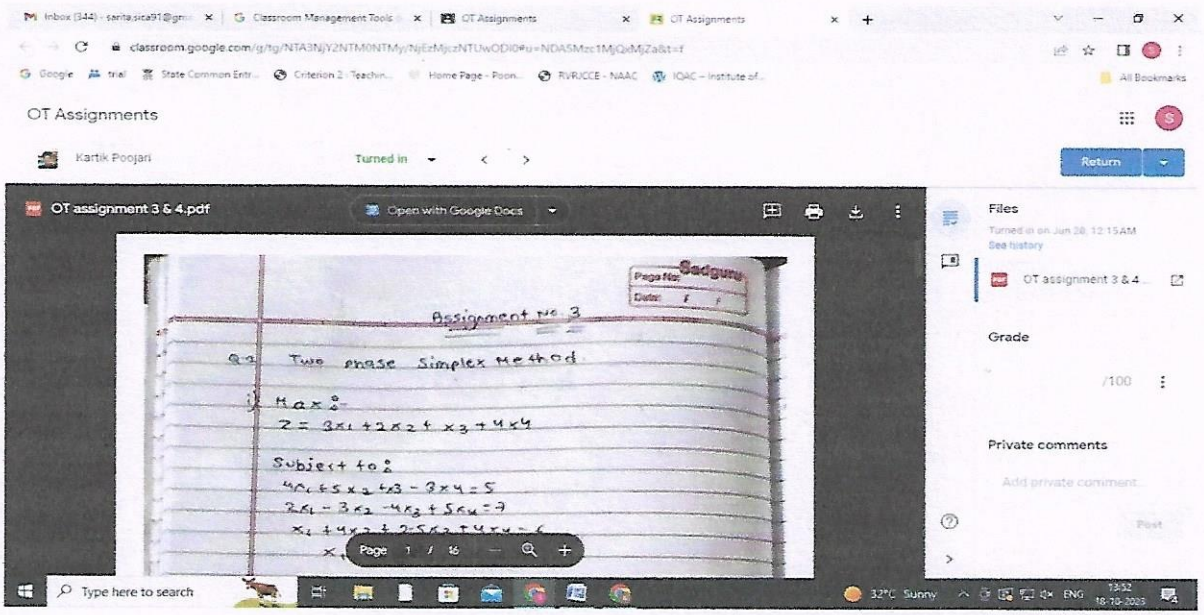
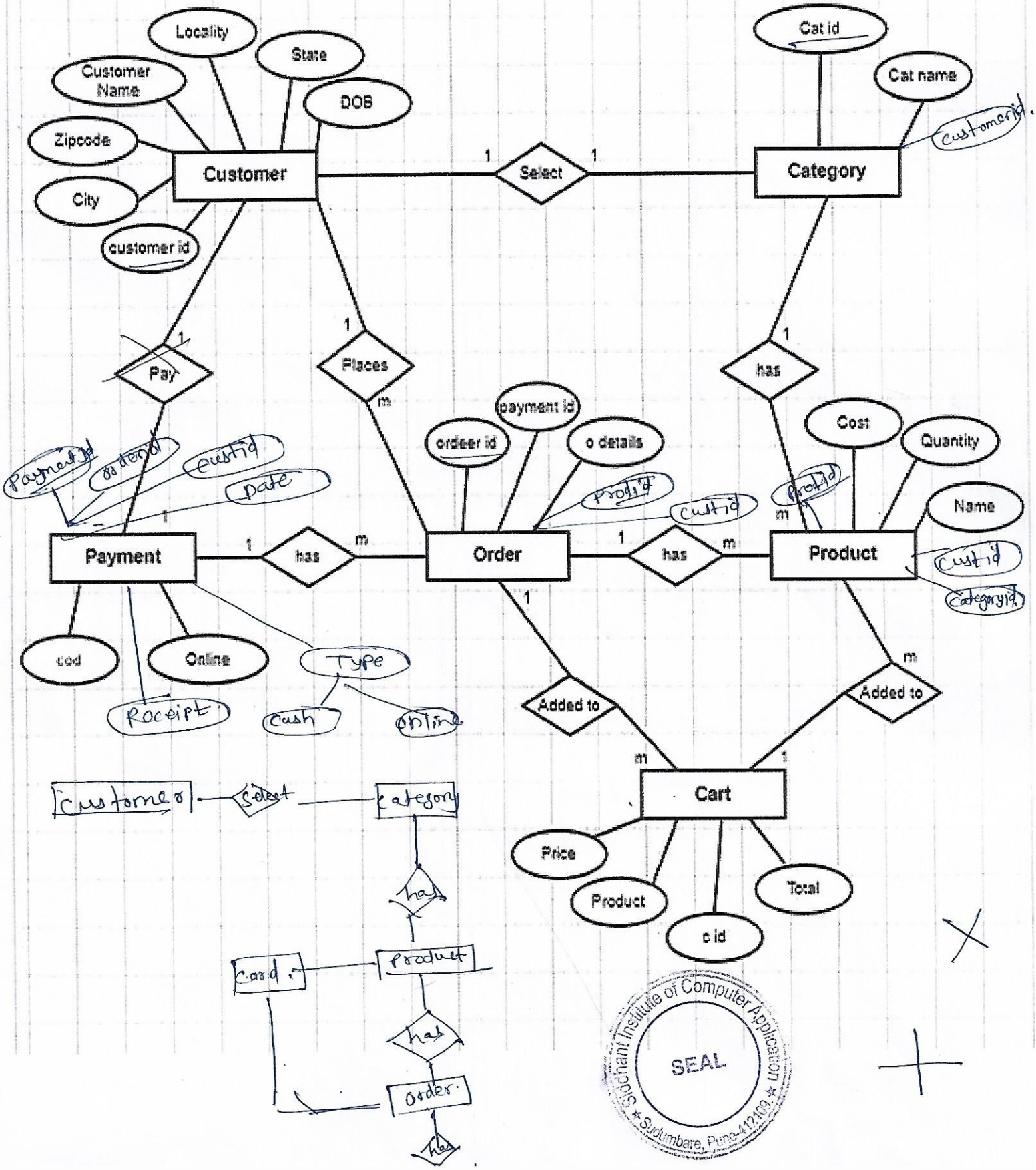
2. Course tutorials based on Problems

Course: **MT21 Optimization Techniques**

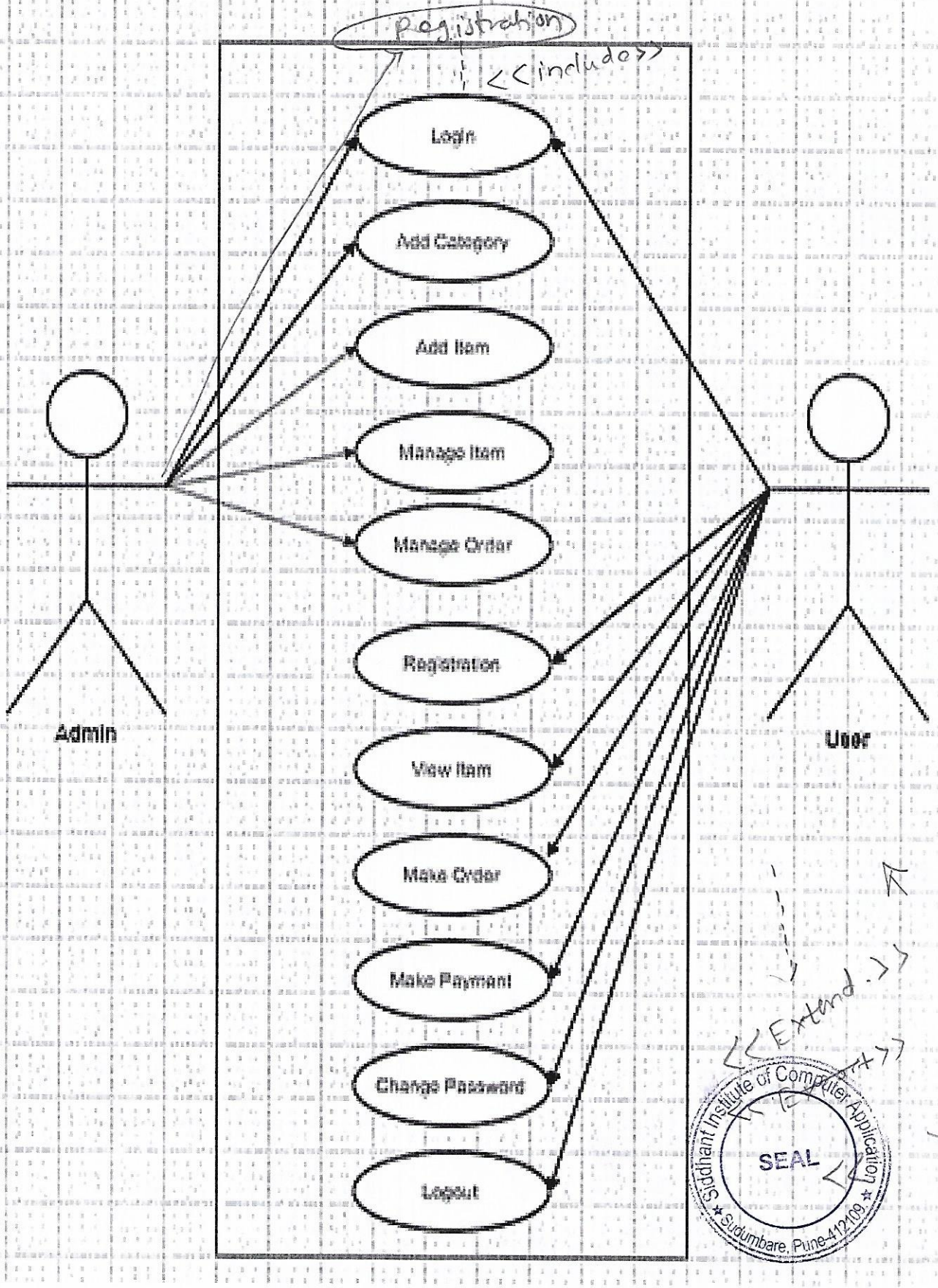




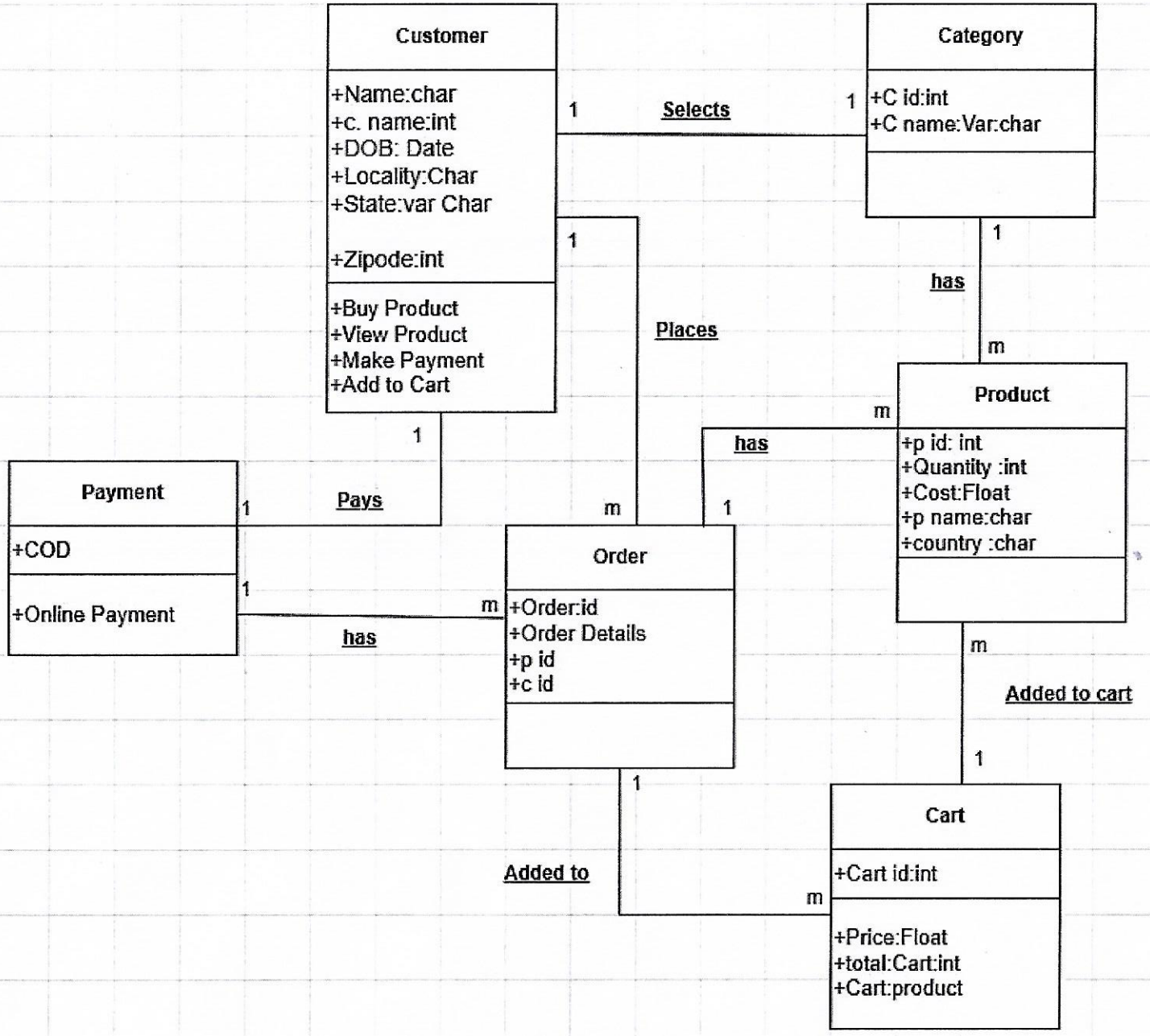
1. E-R Diagrams :-



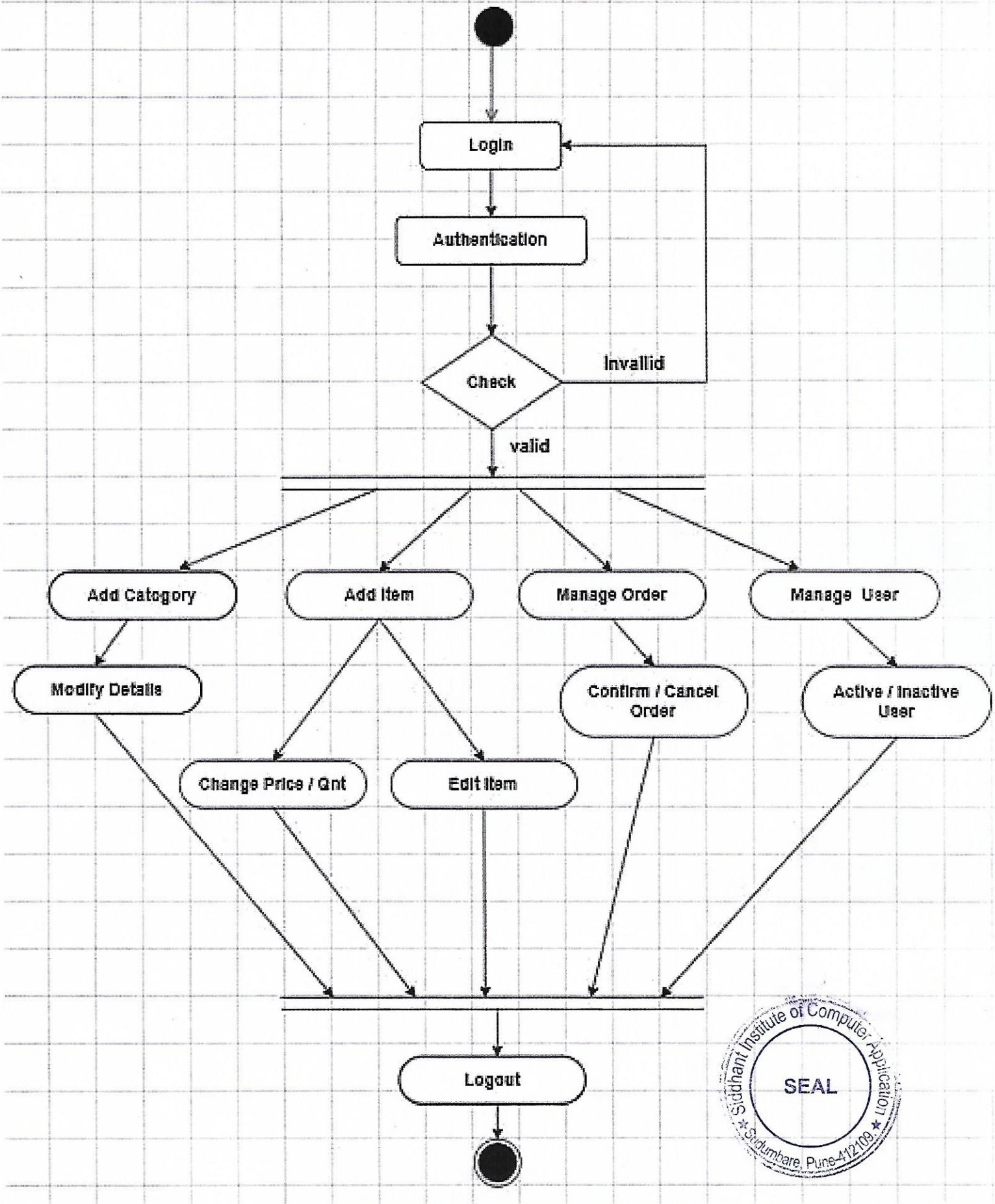
2. Use Case Diagram :-



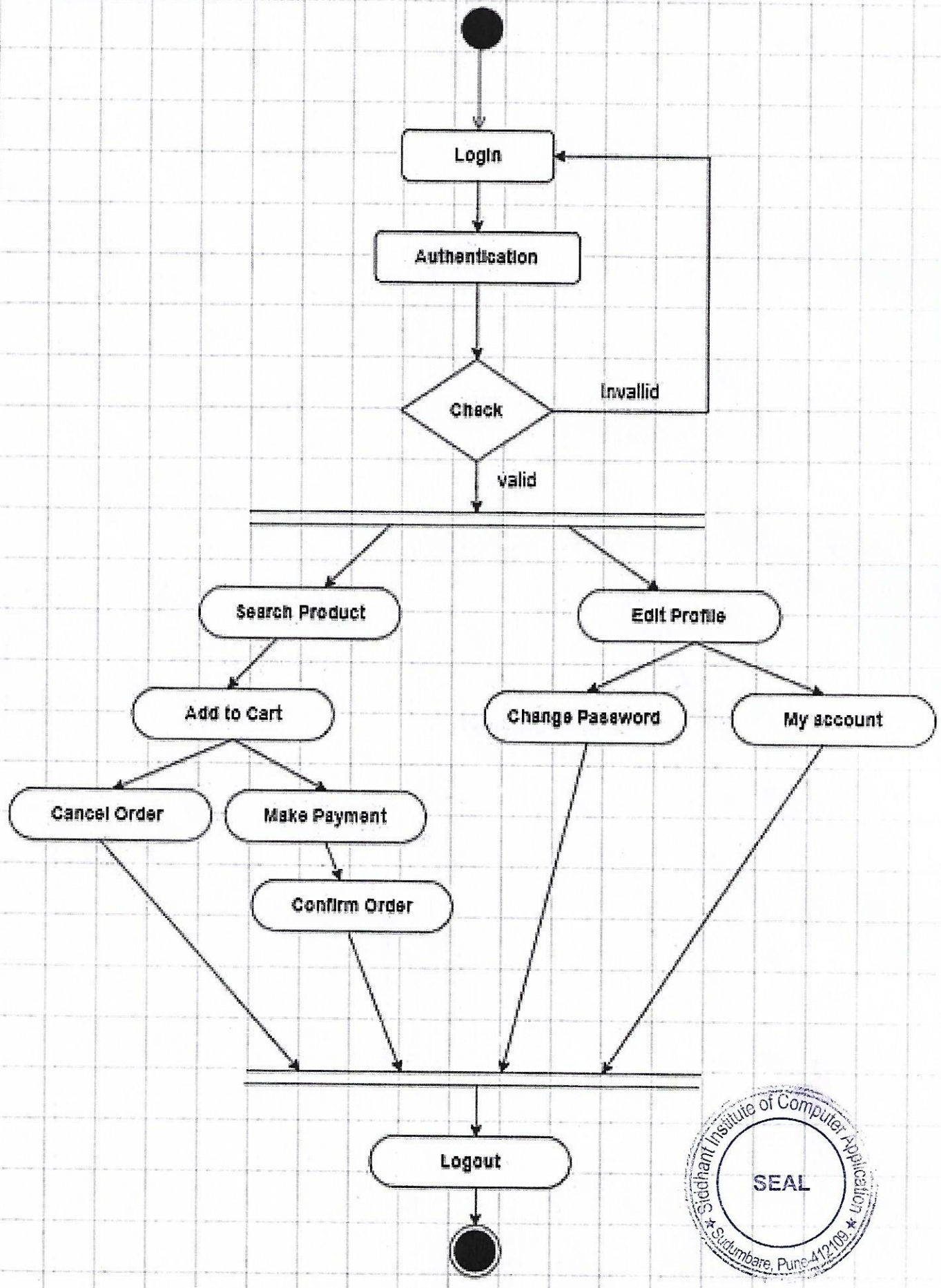
4.CLASS Diagram :-



5.Activity Diagram (Admin) :-

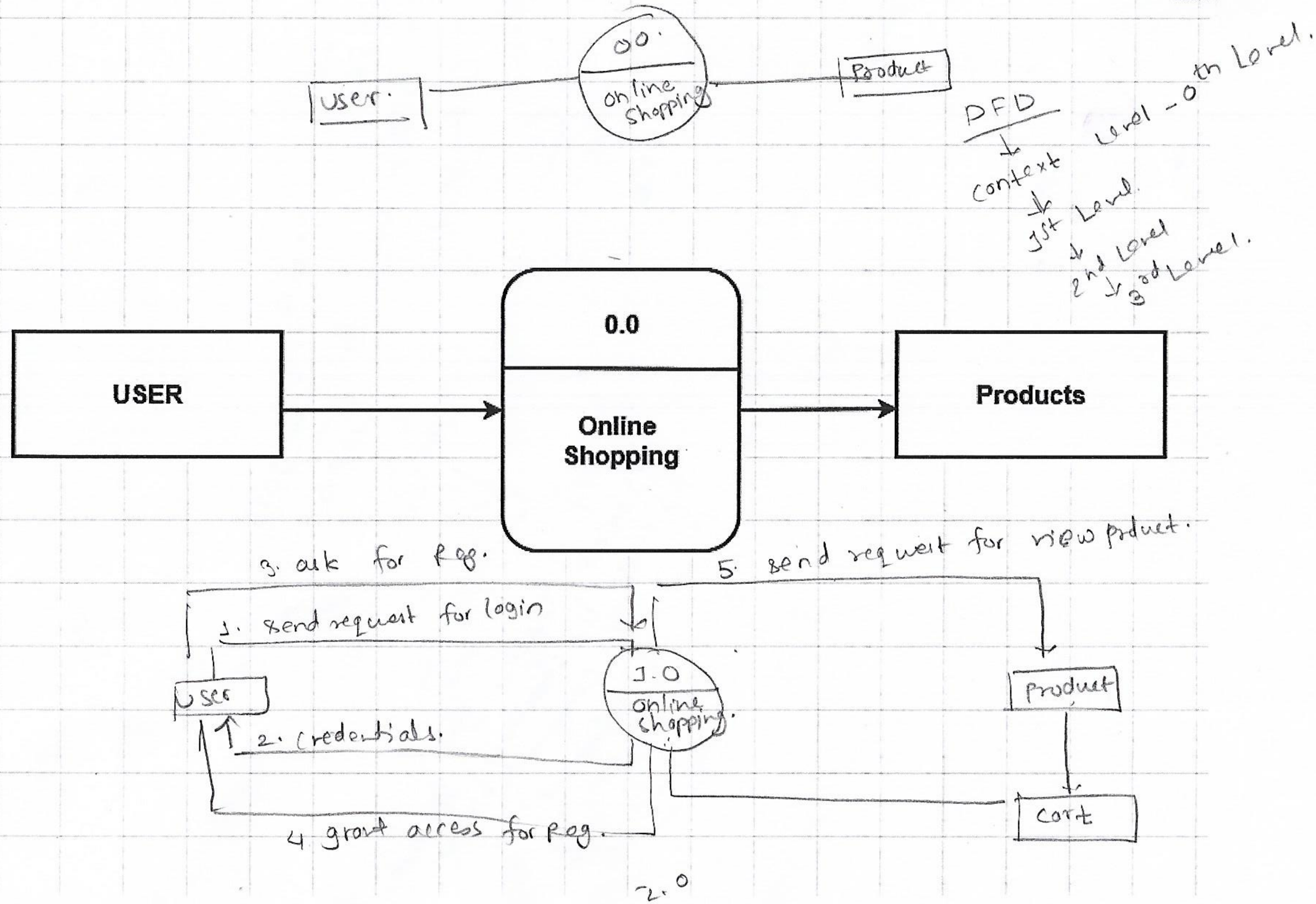


5.Activity Diagram (User Side) :-

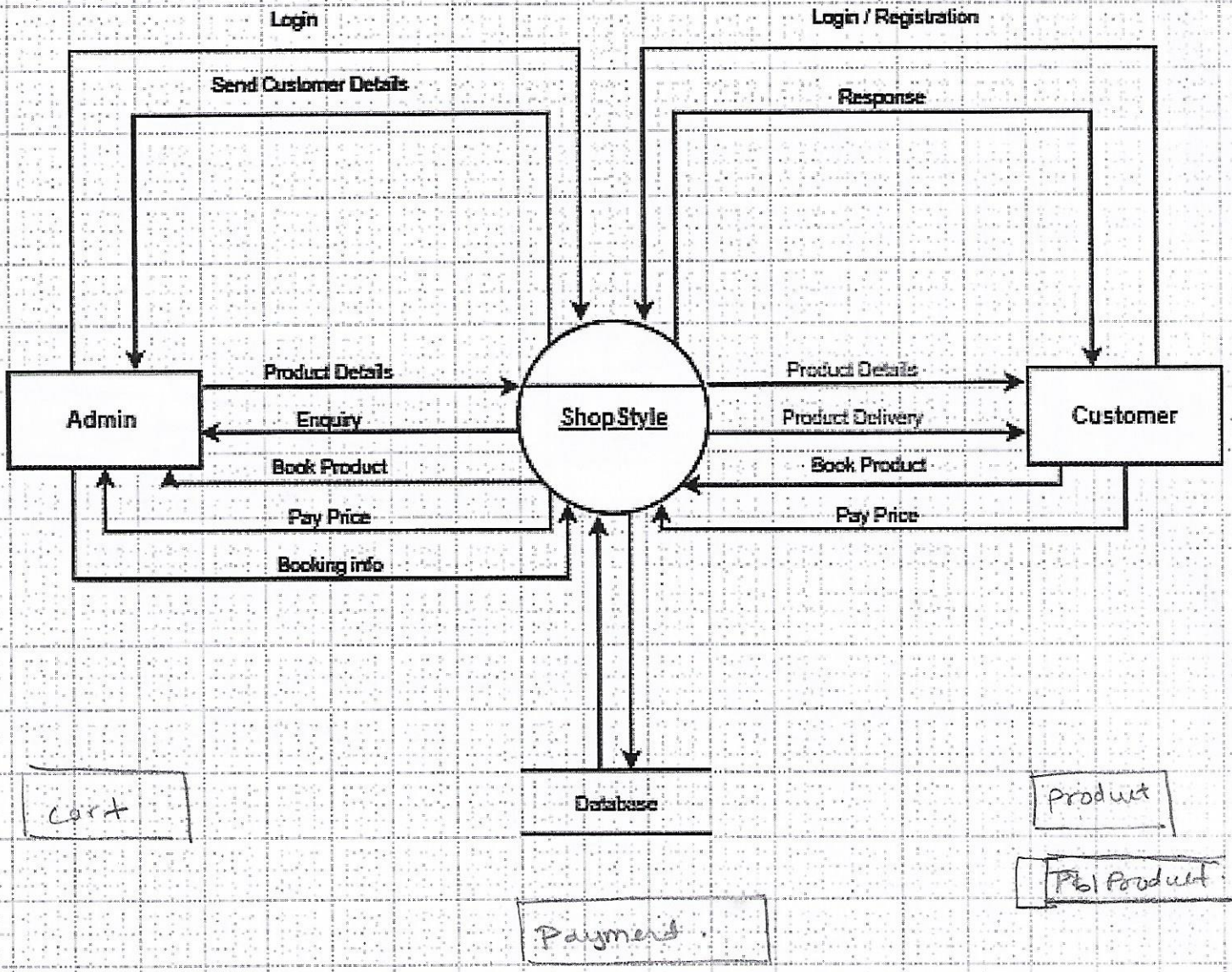


3. DFD :-

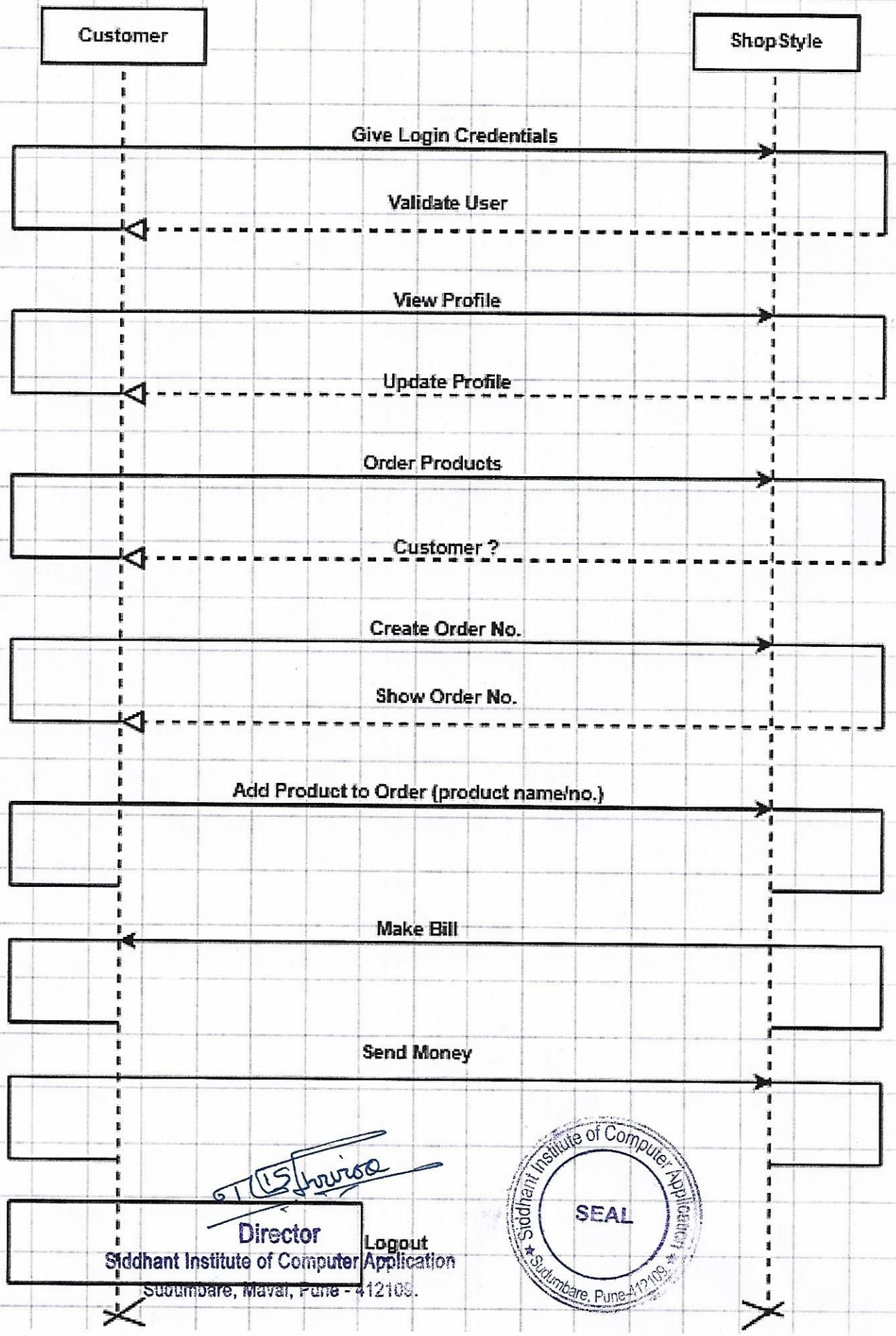
DFD 0 Level :-



6. DFD Diagram :-



6.Sequence Diagram :-



Director
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