

OCTO: Software Engineer Document system design (DOSD)	
SAQA Qualification ID	119458
Intake / year	1-202
Assessment Name	Summative Assessment
Module NQF Level	6
Credits	25
Open date and time	10 April 2026 • Section B: 17:15
Close date and time	10 April 2026 • Section B: 20:15
Assessment Total Marks	75 (50% of total mark percentage)
Pass percentage	65%

Lecturer Information	
Lecturer	Thaveshan Govender
Lecturer E-mail	thaveshang@aie.ac

IMPORTANT NOTICE

Before submitting your assessment, please ensure that it is signed and that all your personal details are accurately filled in the designated space below (Section in red). Work will not be accepted unless the required sections below are fully completed prior to submission, resulting in a 0% grade for this assessment.

The signature must be your valid handwritten signature and NOT your name and surname typed in the space provided.

Student Number:	461476		
Student name and surname:	John Herbst	Date:	2026/10/4
Student cell phone number:	0604944665		
Student Signature:			
Lecturer name and surname:	Thaveshan Govender	Date:	
Lecturer Signature:			
Assessor name and surname:		Date:	
Assessor Signature:			
Moderator name and surname:		Date:	
Moderator Signature:			

Instructions to Candidates	
1.	Read each question carefully.
2.	You must answer Section B below the space provided named "STUDENTANSWER". Once completed, the answer sheet, with your answers, must be converted to PDF and uploaded to the student portal. Make sure that all additional information is uploaded in a single Zipped folder.
3.	QCTO students who achieve between 55-64% may have a further submission opportunity, subject to the departmental rules.
4.	NO LATE submissions will be accepted. (System will automatically close when due date and time is reached). If you encounter any difficulty with the student portal, immediately take a screenshot, log a ticket (attention support), and attach your assessment to the ticket.
5.	You must follow the departmental formatting guidelines.

6. You must write your name, surname, and student number on your script. A failure to do so will result in your script not being marked.
7. By submitting your answer sheet for marking, you declare the following:
 - a. You are familiar with the AIE's policies on academic dishonesty and plagiarism;
 - b. Your submitted is your own original work. Where you have made use of someone else's work, you have duly referenced such work making using of the APA style of referencing;
 - c. You have not allowed, and will not allow any other student to copy your work; and
 - d. You did not copy the work of another student.
8. Students that are dishonest will be subjected to disciplinary procedures.

Assessment Objective/s:

The Formative assessment will cover the following assessment topics:

No	PM number	PS Description
1.	PM-01-PS01	Define the problem
2.	PM-01-PS02	Conduct research to determine requirements
3.	PM-01-PS03	Design the solution

Scope:

This module is crafted to offer you a unique opportunity to immerse yourself in the activities related to system design, moving beyond theoretical knowledge to the practical application of designing effective and efficient systems. It aims to equip you with the skills necessary to navigate the complexities of system design, from the initial problem definition to the final design solution.

Technical Aspects:

Please verify that all pages are included when downloading this assessment by checking the page numbers at the bottom of the document.

Ensure the following font and size is used in this assessment

- a. Font: Arial
- b. Size: 12
- c. Font colour: Black
- d. Ensure clear and adequate screenshots are taken where requested**

Save and upload the report as a .PDF (**No backgrounds**) with the following naming convention:

- a. StudentName_ StudentSurname _Student no _ModuleCode _SA1

Mark allocation for report

See Mark allocation sheet below

Question 1

(20)

<i>PM No</i>	<i>PS No</i>	<i>PS Description</i>
<i>01</i>	<i>01</i>	<i>Define the problem</i>

Use Case Scenario:

Client: ABC Online Bookstore

ABC Online Bookstore is facing customer **dissatisfaction** due to **limited functionality** on their existing website. Customers **cannot search** for books efficiently, there are no **personalized recommendations**, and the **checkout process** is lengthy and confusing.

The company wants to develop a mobile-friendly online shopping system to improve customer experience, increase sales, and streamline the purchase process.

a)	Clearly define the problem faced by ABC Online Bookstore. Focus on the followings aspects: • Problem statement • Objectives of the system • Core challenges • Stakeholders • Problem definition document	[20]
	ANSWER:	

Question 2

(23)

<i>PM No</i>	<i>PS No</i>	<i>PS Description</i>
<i>01</i>	<i>02</i>	<i>Conduct research to determine requirements</i>

Use Case Scenario:

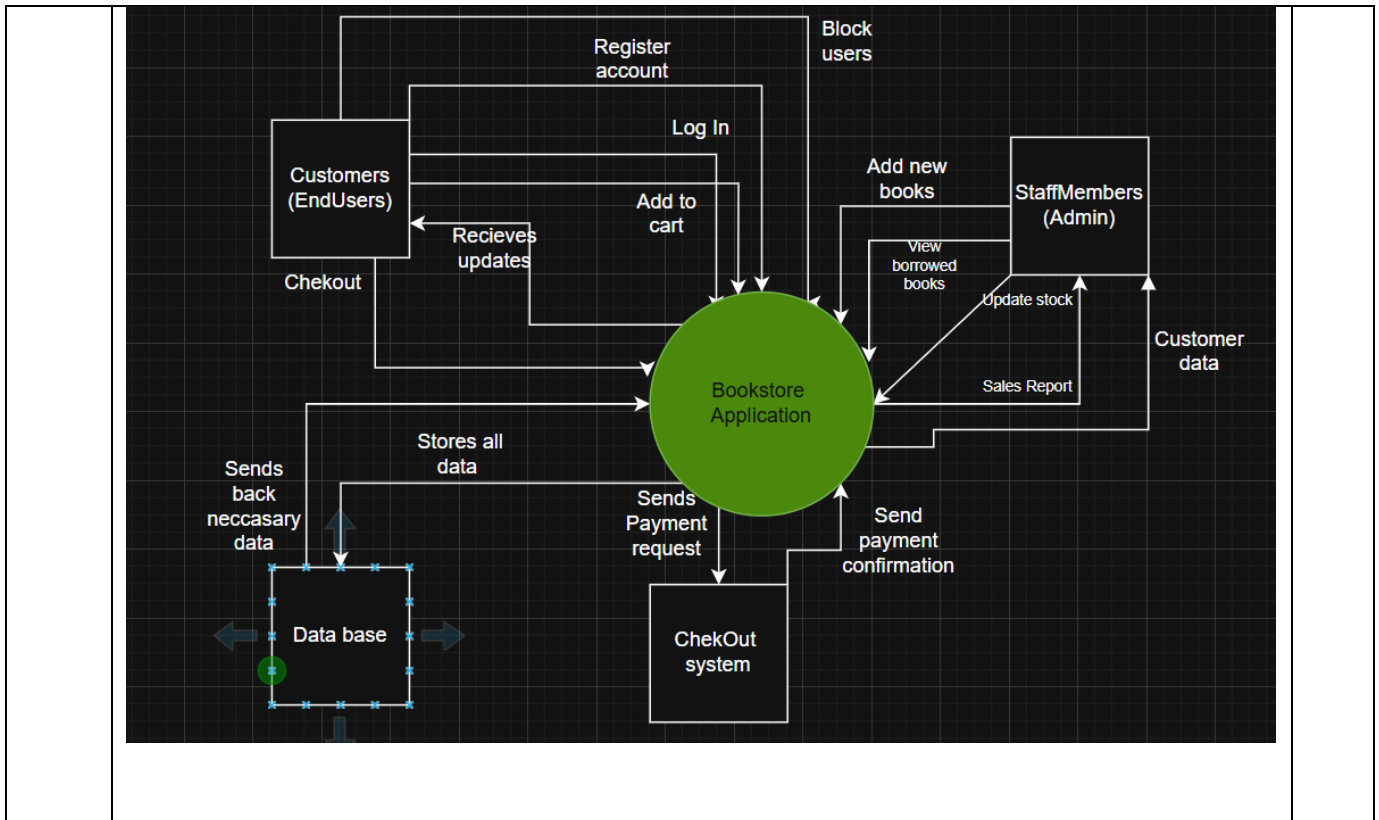
Client: Local Public Library (Knowledge Point Library)

Knowledge Point Library wants to automate its book inventory and user borrowing system. Currently, it uses a manual register for lending and returning books. There are frequent issues of lost records, overdue books, and untracked fines.

The library wants an online system where users can register, search for books, and track borrowings online.

a)	Identify data collection methods suitable for this project	[3]
	ANSWER: Meetings with the client. Interviews with current users/customers Surveys	
b)	Identify data to determine: Functional Requirements (features the system must have)	[10]

	• Non-Functional Requirements (security, usability, performance)	
	ANSWER: Functional requirements User operations: The user must be able to log in, create a profile, view books, add items to the cart, and proceed to checkout. Search for books. See when to return borrowed books System Actions: The system should have personalized recommendations and send a confirmation email to let users know that their purchase was successful. The system should send notifications to users when new books are released. the system should remind users to return books before the due date and block users that doesn't return their books. The system should inform the admin about users that does not return books before due time. Data handling: The system should let staff members add new books and delete outdated books. They should also be able to add quantities. The system must keep record of borrowed books, Customers, available stock Non-Functional requirements The system should be user-friendly and basic. The system should be fast and responsive. The UI must be intuitive. The system should be secure and safe to browse. There should be minimal crashes and downtime. The app should be available on mobile and desktop.	
c)	Draw a context diagram showing system boundaries and data flows.	[10]
	ANSWER:	



Question 3

(32)

PM No	PS No	PS Description
01	03	Design the solution

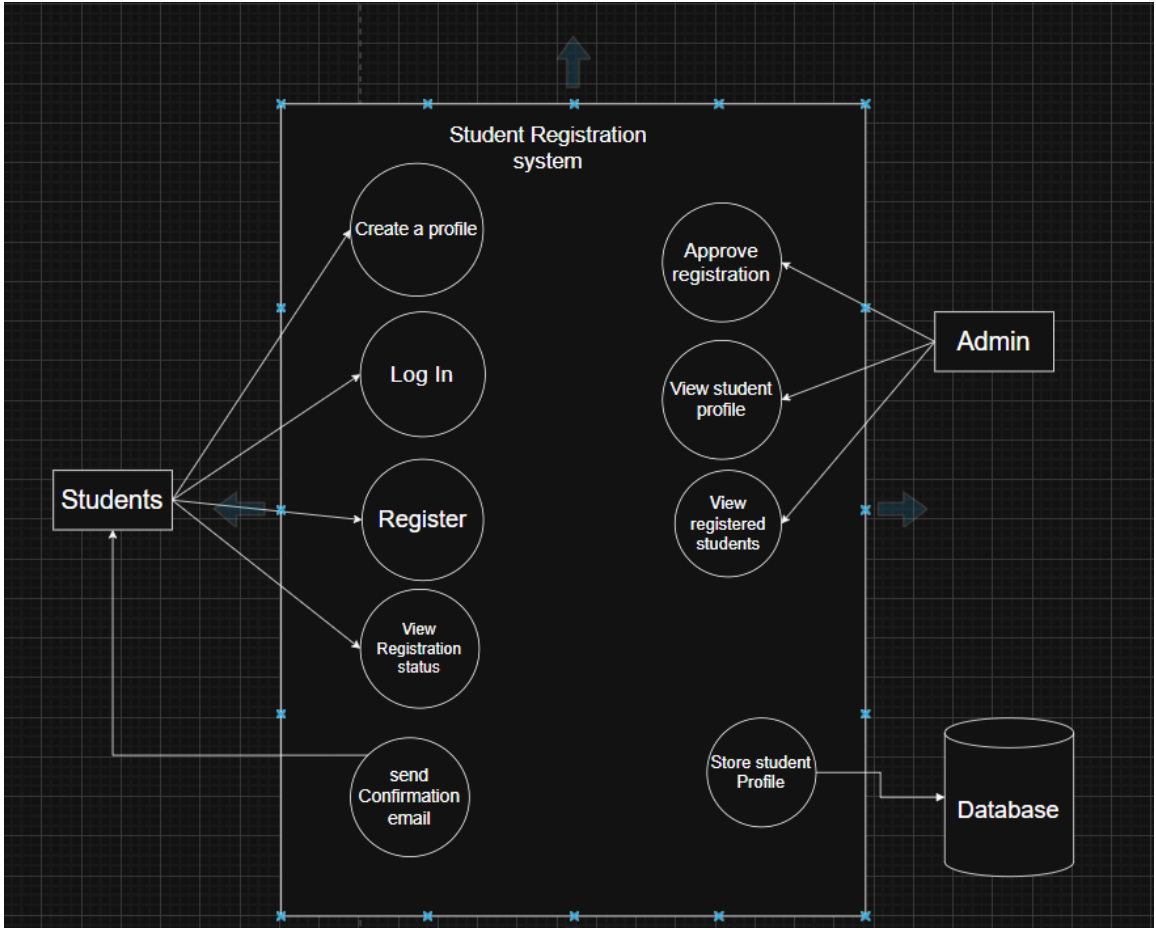
Use Case Scenario:

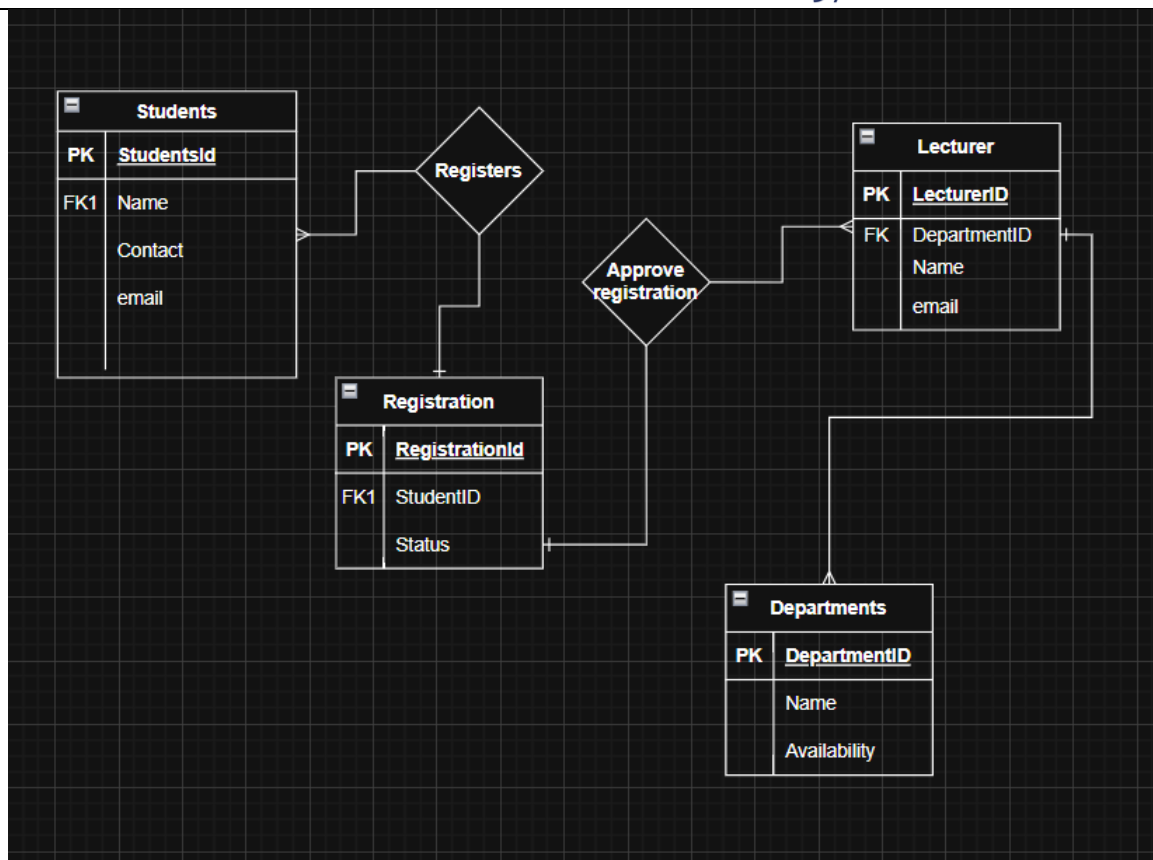
Client: Student Registration System for Bright Future College

Bright Future College is struggling with a manual student registration process. Students fill physical forms, which results in data entry errors, missing files, and slow processing times.

They want an online system that allows:

- Students to register online
- Admin to approve registrations
- Automated confirmation emails
- Storage of student profiles

a)	Create a Use Case Diagram for the proposed Student Registration System.	[10]
	ANSWER: 	
b)	Design Entity Relationship Diagram (ERD) to show database structure.	[10]
	ANSWER:	



c) Develop wireframes (or screen mock-ups) for:

- Student Registration Form
- Admin Approval Page
- Student Profile Page

[12]

ANSWER:

A blue header bar with a white, stylized 'A' shape on the left and the text "Registration Form" in white sans-serif font on the right.

Fill in

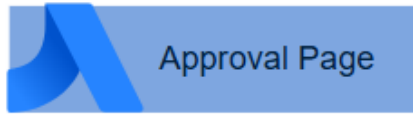
Name

Surname

email

Department

Register



Approval Page

Previous Next

Student Information

Name
Surname
Email
Subject
interested
Education level

Approve

Previous Next

Subject Information

Name
Availability
Lectors
Requirements
Details
level

My Profile

Profile foto

Approved status

List

StudentID

Name

Address

Email

Subject

More About Me

Update Information

Back

Mark allocation for student		
Question	Maximum Mark	Learner mark
Question 1.a	20	
Question 2.a	3	
Question 2.b	10	
Question 2.c	10	

Question 3.a	10	
Question 3.b	10	
Question 3.c	12	
Total:	75	

STUDENT ASSESSMENT FEEDBACK

Qualification Name:	OCTO: Software Engineer
Qualification SAQA Number:	119458
Subject Name:	Document system design
Subject Code:	DOSD
Assessment Name:	Summative Assessment

Assessment Code:	DOSD_SA
-------------------------	----------------

Assessment Decision	Competent		Not yet competent	
----------------------------	------------------	--	--------------------------	--

Feedback report	1st Attempt		2nd Attempt	
	C	NYC	C	NYC
Practical module/Practical skill				
PM01				
PS01				
PS02				
PS03				

General feedback to learner
Supply comprehensive feedback why learner is found NYC