

CSA10 – SOFTWARE ENGINEERING
DIAGRAM BY DIAGRAM DRAWING GUIDE
(University Exam & Record Notebook)

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GENERAL EXAM INSTRUCTIONS:

- Use pencil only
- Use ruler for straight lines
- Write diagram title below the diagram
- Keep diagrams neat and spacious
- All diagrams must be hand drawn in record/exam

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1. USE CASE DIAGRAM – ONLINE VOTING SYSTEM

STEPS TO DRAW:

1. Draw a big rectangle.
2. Write inside top center:
Online Voting System
3. Draw stick figure on left → Voter
4. Draw stick figure on right → Admin
5. Inside rectangle draw ovals:
 - Register
 - Login
 - View Candidates
 - Cast Vote
 - Validate Vote
 - View Result
6. Connect:
Voter → Register, Login, View Candidates, Cast Vote
Admin → Validate Vote, View Result

LABEL BELOW DIAGRAM:

Use Case Diagram for Online Voting System

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2. USE CASE DIAGRAM – LIBRARY MANAGEMENT SYSTEM

STEPS TO DRAW:

1. Draw rectangle → Library Management System
2. Left actor → User

3. Right actor → Librarian
4. Draw ovals inside:
 - Search Book
 - Issue Book
 - Return Book
 - Renew Book
 - Pay Fine
 - Manage Users
5. Connect User → Search Book
6. Connect Librarian → Issue, Return, Fine, Manage Users

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3. FLOWCHART – QUOTIENT AND REMAINDER

SYMBOLS:

Oval – Start/Stop

Parallelogram – Input/Output

Rectangle – Process

DRAWING STEPS:

1. Oval → Start
2. Parallelogram → Read a, b
3. Rectangle → $q = a / b$
4. Rectangle → $r = a \% b$
5. Parallelogram → Print q, r
6. Oval → Stop

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4. ACTIVITY DIAGRAM – SHOPPING CART SYSTEM

SYMBOLS:

● Start

□ Activity

◇ Decision

◎ End

STEPS:

1. ● Start
2. □ Browse Products
3. □ Add Item to Cart
4. □ Update Cart on Server
5. ◇ Another Tab Open?

Yes → Sync Cart

No → Continue

6. ☉ End

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5. USE CASE DIAGRAM – RAILWAY RESERVATION SYSTEM

ACTORS:

- User
- Admin

USE CASES:

- Search Train
- Check Availability
- Book Ticket
- Cancel Ticket
- Make Payment
- Generate Report

STEPS:

1. Draw rectangle → Railway Reservation System
2. Draw actors outside
3. Draw ovals inside
4. Connect actors to use cases

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6. USE CASE DIAGRAM – HOSPITAL MANAGEMENT SYSTEM

ACTORS:

- Patient
- Doctor
- Pharmacist
- Lab Technician
- Admin

USE CASES:

- Register Patient
- Diagnose Patient
- Conduct Test
- Dispense Medicine
- Generate Report
- Manage Records

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7. USE CASE DIAGRAM – ATM SYSTEM

ACTORS:

- Customer
- Bank Server
- Technician

USE CASES:

- Insert Card
 - Enter PIN
 - Withdraw Cash
 - Deposit Cash
 - Balance Enquiry
- =====

8. USE CASE DIAGRAM – ONLINE COLLEGE MANAGEMENT SYSTEM

ACTORS:

- Student
- Faculty
- Admin

USE CASES:

- Manage Students
 - Manage Courses
 - Manage Faculty
 - Record Transactions
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9. ACTIVITY DIAGRAM – ONLINE AIRLINE MANAGEMENT SYSTEM

STEPS:

1. ● Start
2. □ Search Flight
3. □ Check Availability
4. ◇ Seats Available?
Yes → Book Ticket
No → Exit
5. □ Make Payment

6. ☐ Confirm Booking

7. ◎ End

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10. USE CASE DIAGRAM – ONLINE AIRLINE RESERVATION SYSTEM

ACTORS:

- User
- Admin

USE CASES:

- Login
- Manage Classes
- Manage Waiting List
- Manage Holds
- Logout

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11. CLASS DIAGRAM – ONLINE VOTING SYSTEM

DRAW RECTANGLES WITH 3 PARTS:

CLASS: Voter

Attributes:

- voterId
- name

Methods:

- castVote()

CLASS: Candidate

Attributes:

- candidateId
- name

Methods:

- getVotes()

CLASS: Vote

Attributes:

- voteId
- time

Methods:

- recordVote()

RELATION:

Voter → Vote → Candidate

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12. CLASS DIAGRAM – LIBRARY MANAGEMENT SYSTEM

CLASSES:

Book

- bookId
- title
- author

User

- userId
- name

Librarian

- staffId
- name

Transaction

- issueDate
- returnDate

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13–17. ACTIVITY DIAGRAMS (COMMON METHOD)

DRAW IN ORDER:

- Start
- ☐ Activity 1
- ☐ Activity 2
- ◇ Decision (if required)
- ☐ Activity 3
- ◎ End

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18–20. RAPTOR FLOWCHARTS (PALINDROME, STRING)

GENERAL LOGIC:

1. Start

2. Read input
3. Process (reverse / count)
4. Compare
5. Print result
6. Stop

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21–22. CYCLOMATIC COMPLEXITY

NO DIAGRAM REQUIRED

Write formula neatly:

$$V(G) = E - N + P$$

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30–36. RAPTOR NUMERIC FLOWCHARTS

COMMON STRUCTURE:

Start
Read n
Initialize variables
Loop
Calculation
Print result
Stop

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FINAL EXAM TIPS:

- Titles in capital letters
- Neat handwriting
- No overwriting
- Proper spacing
- Correct symbols only

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END