

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

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

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

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

7. USE CASE DIAGRAM – ATM SYSTEM

ACTORS:

- Customer
- Bank Server
- Technician

USE CASES:

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

- candidatId
- name

Methods:

- getVotes()

CLASS: Vote

Attributes:

- votId
- 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
- =====

13–17. ACTIVITY DIAGRAMS (COMMON METHOD)

DRAW IN ORDER:

- Start
 - Activity 1
 - Activity 2
 - ◊ Decision (if required)
 - Activity 3
 - ◎ End
- =====

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:

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

30–36. RAPTOR NUMERIC FLOWCHARTS

COMMON STRUCTURE:

Start
Read n
Initialize variables
Loop
Calculation
Print result
Stop

FINAL EXAM TIPS:

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