# Question 1

## Stadium.java

public class Stadium {  
 String name;  
 String city;  
 int capacity;  
 int matches\_Scheduled;  
 public void scheduleMatch()  
 {  
 matches\_Scheduled++;  
 System.out.println("Match successfully Scheduled !!");  
 };  
 public void display\_details()  
 {  
 System.out.println("name:"+city);  
 System.out.println("city: "+city);  
 System.out.println("capacity: "+capacity);  
 System.out.println("matches scheduled "+matches\_Scheduled);  
  
 }  
  
}

## main\_1.java

import java.util.\*;  
  
public class main\_1 {  
 public static void main(String[] args) {  
 System.out.println("Welcome to Champions Trophy 2025");  
 Stadium s1 = new Stadium();  
 Stadium s2 = new Stadium();  
 Scanner input = new Scanner(System.in);  
 System.out.println("Enter Details for Stadium 1 ");  
 System.out.println("Enter Stadium Name:");  
 s1.name = input.nextLine();  
 System.out.println("Enter the city name:");  
 s1.city = input.nextLine();  
 System.out.println("Enter the capacity:");  
 s1.capacity = input.nextInt();  
 input.nextLine();  
 System.out.println("Enter Details for Stadium 2 ");  
 System.out.println("Enter Stadium Name:");  
 s2.name = input.nextLine();  
 System.out.println("Enter the city name:");  
 s2.city = input.nextLine();  
 System.out.println("Enter the capacity:");  
 s2.capacity = input.nextInt();  
 int temp = 0;  
 do {  
 System.out.println("1) Schedule Match:");  
 System.out.println("2) Display Details");  
 System.out.println("3) Exit");  
 System.out.println("Enter your choice:");  
 int choice = input.nextInt();  
 switch (choice) {  
 case 1: {  
 System.out.println("Which Stadium u want to choose \n 1) Stadium 1 \n 2) Stadium 2 ");  
 int select = input.nextInt();  
 if (select == 1) {  
 s1.scheduleMatch();  
 break;  
 } else if (select == 2) {  
 s2.scheduleMatch();  
 break;  
 } else {  
 System.out.println("invalid option");  
 break;  
 }  
  
 }  
 case 2: {  
 s1.display\_details();  
 s2.display\_details();  
 break;  
 }  
 default: {  
 temp = 3;  
 break;  
 }  
 }  
  
 } while (temp != 3);  
 }  
}

# Question 10

## q10.java

import java.util.\*;  
public class q10 {  
 public static void main(String[] args) {  
 Scanner input=new Scanner(System.in);  
 ArrayList<String> Students=new ArrayList<>();  
 int temp=0;  
 do {  
 System.out.println(" 1) Register \n 2) Withdraw \n 3)update \n 4)Display list \n 5) exit");  
 System.out.println("Enter your choice:");  
 int choice=input.nextInt();  
 input.nextLine();  
 switch(choice)  
 {  
 case 1:  
 {  
 System.out.println("Enter the Student Name:");  
 Students.add(input.nextLine());  
 break;  
 }  
 case 2: {  
 String name;  
 System.out.println("Enter the Student Name:");  
 name = input.nextLine();  
 if(Students.remove(name))  
 {  
 Students.remove(name);  
 }  
 else {  
 System.out.println("Student Not Found !!!");  
  
 }  
 break;  
  
 }  
 case 3:  
 {  
 String name;  
 System.out.println("Enter the Student Name:");  
 name = input.nextLine();  
 if(Students.contains(name))  
 {  
 String updated\_name;  
 System.out.println("Enter updated name:");  
 updated\_name=input.nextLine();  
 Students.set(Students.indexOf(name),updated\_name);  
 }  
 else {  
 System.out.println("Student Not found!!!");  
 }  
 break;  
 }  
 case 4:  
 {  
 System.out.println("Current list:");  
 for(String student: Students)  
 {  
 System.out.println(student);  
 }  
 break;  
 }  
  
 default:  
 {  
 temp=3;  
 break;  
 }  
 }  
  
 }while(temp !=4);  
 }  
}

# Question 11

## q11.java

import java.util.\*;  
public class q11 {  
 public static void main(String[] args) {  
 ArrayList<String> student = new ArrayList<>();  
 Scanner input = new Scanner(System.in);  
 int choice;  
 do {  
 System.out.println("Student system \n[Karachi campus]");  
 System.out.println("1. New Student");  
 System.out.println("2. Update Student Name");  
 System.out.println("3. Remove student");  
 System.out.println("4. Current list");  
 System.out.println("5. Exit");  
 System.out.print("Enter your choice: ");  
 choice = input.nextInt();  
 input.nextLine();  
 switch (choice) {  
 case 1:  
 System.out.print("Enter new student name: ");  
  
 String newStudent = input.nextLine();  
  
 student.add(newStudent);  
  
 break;  
 case 2:  
 System.out.print("Enter student name: ");  
  
 String currentname = input.nextLine();  
  
 if (student.contains(currentname)) {  
 System.out.print("Enter updated name: ");  
  
 String updatedname = input.nextLine();  
  
 student.set(student.indexOf(currentname), updatedname);  
 } else {  
  
 System.out.println("Student not found.");  
 }  
 break;  
 case 3:  
 System.out.print("Enter student name to remove: ");  
  
 String cancel = input.nextLine();  
 if (student.contains(cancel)) {  
  
 student.remove(cancel);  
  
 } else {  
 System.out.println("Student not found.");  
 }  
  
 break;  
 case 4:  
 System.out.println("Current list:");  
  
 for (String students : student) {  
  
 System.out.println(students);  
 }  
 break;  
 case 5:  
 System.out.println("Exiting system.");  
  
 break;  
 default:  
 System.out.println("Invalid choice. Try again.");  
  
 }  
 } while (choice != 5);  
 }  
}

# Question 2

## Session.java

import java.util.\*;  
public class Session {  
 String sessionTitle;  
 String speakerName;  
 int duration;  
 int roomNumber;  
 void scheduleSession()  
 {  
 Scanner object=new Scanner(System.in);  
 System.out.println("Enter Speaker Name:");  
 speakerName= object.nextLine();  
 System.out.println("Enter Room Number:");  
 roomNumber=object.nextInt();  
 }  
 void displaySessionDetails()  
 {  
 System.out.println("sessionTitle: "+sessionTitle );  
 System.out.println("SpeakerName: "+speakerName );  
 System.out.println("RoomNumber: "+roomNumber );  
 }  
}

## q2.java

import java.util.\*;  
public class q2 {  
 public static void main(String[] args) {  
 Session ai\_trends= new Session();  
 Session cyber\_security= new Session();  
 Scanner input=new Scanner(System.in);  
 System.out.println("Enter Details for Session 1 ");  
 System.out.println("Enter Session title:");  
 ai\_trends.sessionTitle=input.nextLine();  
 System.out.println("Enter the Speaker Name:");  
 ai\_trends.speakerName=input.nextLine();  
 System.out.println("Enter the room number:");  
 ai\_trends.roomNumber=input.nextInt();  
 input.nextLine();  
 System.out.println("Enter Details for Session 1 ");  
 System.out.println("Enter Session title:");  
 cyber\_security.sessionTitle=input.nextLine();  
 System.out.println("Enter the Speaker Name:");  
 cyber\_security.speakerName=input.nextLine();  
 System.out.println("Enter the room number:");  
 cyber\_security.roomNumber=input.nextInt();  
 int temp=0;  
 do {  
 System.out.println("1) Schedule Session:");  
 System.out.println("2) Display Session Details");  
 System.out.println("3) Exit");  
 System.out.println("Enter your choice:");  
 int choice=input.nextInt();  
 switch(choice)  
 {  
 case 1:  
 {  
 System.out.println("Which Session u want to choose \n 1) Session 1 \n 2) Session 2 ");  
 int select=input.nextInt();  
 if(select==1)  
 {  
 ai\_trends.scheduleSession();  
 break;  
 } else if (select==2) {  
 cyber\_security.scheduleSession();  
 break;  
 }  
 else {  
 System.out.println("invalid option");  
 break;  
 }  
  
 }  
 case 2:  
 {  
 ai\_trends.displaySessionDetails();  
 System.out.println("\n");  
 cyber\_security.displaySessionDetails();  
 break;  
 }  
 default:  
 {  
 temp=3;  
 break;  
 }  
 }  
  
 }while(temp !=3);  
 }  
}

# Question 3

## Main.java

class Student {  
 String name;  
 String[] skills;  
  
 Student(String name, String[] skills) {  
 this.name = name;  
 this.skills = skills;  
 }  
}  
  
class Company {  
 String companyName;  
 String industryType;  
 String jobRole;  
 String[] requiredSkills;  
  
 Company(String companyName, String industryType, String jobRole, String[] requiredSkills) {  
 this.companyName = companyName;  
 this.industryType = industryType;  
 this.jobRole = jobRole;  
 this.requiredSkills = requiredSkills;  
 }  
  
 void scheduleInterview(Student student) {  
 for (String skill : requiredSkills) {  
 boolean hasSkill = false;  
 for (String studentSkill : student.skills) {  
 if (skill.equals(studentSkill)) {  
 hasSkill = true;  
 break;  
 }  
 }  
 if (!hasSkill) {  
 System.out.println(student.name + " does not meet the requirements for " + companyName);  
 return;  
 }  
 }  
 System.out.println(student.name + " has been scheduled for an interview with " + companyName);  
 }  
  
 void displayCompanyDetails() {  
 System.out.println("Company Name: " + companyName);  
 System.out.println("Industry Type: " + industryType);  
 System.out.println("Job Role: " + jobRole);  
 System.out.print("Required Skills: ");  
 for (String skill : requiredSkills) {  
 System.out.print(skill + " ");  
 }  
 System.out.println();  
 }  
}  
  
public class Main {  
 public static void main(String[] args) {  
 Company systemsLimited = new Company("Systems Limited", "IT", "Software Engineer", new String[]{"Java", "Python", "SQL"});  
 Company folio3 = new Company("Folio3", "IT", "Data Analyst", new String[]{"Machine Learning", "Python", "Power BI"});  
  
 Student student1 = new Student("Ali", new String[]{"Java", "Python", "SQL"});  
 Student student2 = new Student("Ahmed", new String[]{"Machine Learning", "Python", "Power BI"});  
  
 systemsLimited.displayCompanyDetails();  
 folio3.displayCompanyDetails();  
  
 systemsLimited.scheduleInterview(student1);  
 folio3.scheduleInterview(student2);  
 }  
}

# Question 4

## Course.java

public class Course {  
 private String courseCode;  
 private String courseName;  
 private int creditHours;  
  
 public String getCourseCode() {  
 return courseCode;  
 }  
 public String getCourseName() {  
 return courseName;  
 }  
  
 public int getCreditHours() {  
 return creditHours;  
 }  
  
 public void setCourseCode(String courseCode) {  
 if (courseCode.matches("[A-Z]{2}[0-9]{3}")) {  
 this.courseCode = courseCode;  
 } else {  
 System.out.println("Invalid Formart");  
 }  
 }  
  
 public void setCourseName(String courseName) {  
 this.courseName = courseName;  
 }  
  
 public void setCreditHours(int creditHours) {  
 if (creditHours >= 1 && creditHours <= 4) {  
 this.creditHours = creditHours;  
 } else {  
 System.out.println("Invalid credit hours (1-4)");  
 }  
 }  
  
 public void displayCourseDetails() {  
 System.out.println("Course Code: " + getCourseCode());  
 System.out.println("Course Name: " + getCourseName());  
 System.out.println("Credit Hours: " + getCreditHours());  
 }  
}

## q4.java

class q4{  
public static void main(String[] args) {  
 Course course = new Course();  
 course.setCourseCode("NS101");  
 course.setCourseName("Applied Physics");  
 course.setCreditHours(3);  
 course.displayCourseDetails();  
 course.setCourseCode("MT1003");   
 course.setCourseName("CALCULUS");  
 course.setCreditHours(5);  
}}

# Question 5

## InventorySystem.java

import java.util.ArrayList;  
import java.util.Scanner;  
  
public class InventorySystem {  
 public static void main(String[] args) {  
 ArrayList<Item> items = new ArrayList<>();  
 items.add(new Item("Pen", 101, 10.0, 50));  
 items.add(new Item("Notebook", 102, 50.0, 30));  
 items.add(new Item("Pencil", 103, 5.0, 100));  
  
 Scanner scanner = new Scanner(System.in);  
 System.out.print("Enter item name or ID to search: ");  
 String searchInput = scanner.nextLine();  
  
 Item foundItem = null;  
 try {  
 int searchID = Integer.parseInt(searchInput);  
 for (Item item : items) {  
 if (item.itemID == searchID) {  
 foundItem = item;  
 break;  
 }  
 }  
 } catch (NumberFormatException e) {  
 for (Item item : items) {  
 if (item.itemName.equalsIgnoreCase(searchInput)) {  
 foundItem = item;  
 break;  
 }  
 }  
 }  
  
 if (foundItem != null) {  
 System.out.println("Item found. Price: " + foundItem.getPrice());  
 System.out.print("Enter quantity to purchase: ");  
 int quantity = scanner.nextInt();  
  
 if (quantity <= foundItem.getStock()) {  
 double totalBill = quantity \* foundItem.getPrice();  
 foundItem.setStock(foundItem.getStock() - quantity);  
 System.out.println("Total bill: " + totalBill);  
 System.out.println("Remaining stock: " + foundItem.getStock());  
 } else {  
 System.out.println("Insufficient stock. Purchase cannot be completed.");  
 }  
 } else {  
 System.out.println("Item not found.");  
 }  
 scanner.close();  
 }  
}

## Item.java

class Item {  
 public String itemName;  
 public int itemID;  
 private double price;  
 private int stock;  
  
 public Item(String itemName, int itemID, double price, int stock) {  
 this.itemName = itemName;  
 this.itemID = itemID;  
 this.price = price;  
 this.stock = stock;  
 }  
  
 public double getPrice() {  
 return price;  
 }  
  
 public void setPrice(double price) {  
 this.price = price;  
 }  
  
 public int getStock() {  
 return stock;  
 }  
  
 public void setStock(int stock) {  
 this.stock = stock;  
 }  
}

# Question 6

## Student.java

public class Student {  
 public int Age;  
 public String Name;  
 public String Course;  
  
 public static void main(String[] args) {  
 Student student = new Student();  
 student.Name = "Syed Arham";  
 student.Age = 18;  
 student.Course = "OOP in JAVA";  
 System.out.println("My name is " + student.Name + ", I'm " + student.Age + " years old, and I am studying " + student.Course + ".");  
 }  
}

# Question 7

## q7.java

class Book {  
 String title;  
 String author;  
 double price;  
  
 public Book(String title, String author, double price) {  
 this.title = title;  
 this.author = author;  
 this.price = price;  
 }  
  
 public void setTitle(String title) {  
 this.title = title;  
 }  
  
 public void setAuthor(String author) {  
 this.author = author;  
 }  
  
 public void setPrice(double price) {  
 this.price = price;  
 }  
  
 public String getTitle() {  
 return title;  
 }  
  
 public String getAuthor() {  
 return author;  
 }  
  
 public String toString() {  
 return "Title: " + title + ", Author: " + author + ", Price: " + price;  
 }  
}  
  
public class q7 {  
 public static void main(String[] args) {  
 Book book = new Book("Java: A Beginner's Guide", "Herbert Schildt", 100.95);  
 System.out.println(book.toString());  
 }  
}

# Question 8

## Temperature.java

import java.util.\*;  
public class Temperature {  
 public static void main(String[] args) {  
 int[] temp=new int[5];  
 int[] newTemp=new int[5];  
 Scanner input=new Scanner(System.in);  
  
  
 for(int i=0;i<temp.length;i++){  
 System.out.println("Enter temperature no. "+ (i+1));  
 temp[i]=input.nextInt();  
 newTemp[i]=temp[i]+2;  
 }  
 System.out.println(" original temperatures");  
 for(int i=0;i<temp.length;i++) {  
 System.out.print(" "+temp[i]);  
 }  
  
 System.out.println(" \nAdjusted temperature");  
 for(int i=0;i<temp.length;i++) {  
 System.out.print(" "+newTemp[i]);  
 }  
 }  
}

# Question 9

## question9.java

import java.util.Scanner;  
public class question9 {  
 public static void main(String[] args) {  
 int[] orignal=new int[5];  
 int[] discounted=new int[5];  
 Scanner input=new Scanner(System.in);  
  
  
 for(int i=0;i<orignal.length;i++){  
 System.out.println("Enter price of item no. "+ (i+1));  
 orignal[i]=input.nextInt();  
 discounted[i]=(orignal[i]-(orignal[i]/10));  
 }  
 System.out.println(" original prices");  
 for(int i=0;i<orignal.length;i++) {  
 System.out.print(" "+orignal[i]);  
 }  
  
 System.out.println(" \nAdjusted prices");  
 for(int i=0;i<orignal.length;i++) {  
 System.out.print(" "+discounted[i]);  
 }  
 }  
}