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import java.util.*;

class Person {
    protected String name;

    public Person(String name) {
        this.name = name;
    }

    public String getName() {
        return name;
    }
}

class Voter extends Person {
    private int voterId;
    private boolean hasVoted;

    public Voter(int voterId, String name) {
        super(name);
        this.voterId = voterId;
        this.hasVoted = false;
    }

    public int getVoterId() {
        return voterId;
    }

    public boolean hasVoted() {
        return hasVoted;
    }

    public void setVoted(boolean voted) {
        this.hasVoted = voted;
    }
}

class Candidate extends Person {
    private int candidateId;
    private int votes;

    public Candidate(int candidateId, String name) {
        super(name);
        this.candidateId = candidateId;
    }
}
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        this.votes = 0;
    }

    public int getCandidateId() {
        return candidateId;
    }

    public void addVote() {
        votes++;
    }

    public int getVotes() {
        return votes;
    }
}

class Election {
    private List<Voter> voters = new ArrayList<>();
    private List<Candidate> candidates = new ArrayList<>();

    public void addVoter(Voter voter) {
        voters.add(voter);
    }

    public void addCandidate(Candidate candidate) {
        candidates.add(candidate);
    }

    public Voter loginVoter(int voterId) {
        for (Voter v : voters) {
            if (v.getVoterId() == voterId) {
                return v;
            }
        }
        return null;
    }

    public void showCandidates() {
        System.out.println("\nCandidates:");
        for (Candidate c : candidates) {
            System.out.printf("%d. %s\n", c.getCandidateId(), c.getName());
        }
    }
}

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public void castVote(Voter voter, int candidateId) {
    if (voter.hasVoted()) {
        System.out.println("You have already voted!");
        return;
    }

    for (Candidate c : candidates) {
        if (c.getCandidateId() == candidateId) {
            c.addVote();
            voter.setVoted(true);
            System.out.println("Vote casted successfully!");
            return;
        }
    }
    System.out.println("Invalid Candidate ID!");
}

public void showResults() {
    System.out.println("\n----- ELECTION RESULTS -----");
    Candidate winner = null;
    int maxVotes = 0;
    boolean tie = false;

    for (Candidate c : candidates) {
        System.out.printf("%d. %s - Votes: %d\n", c.getCandidateId(), c.getName(),
c.getVotes());

        if (winner == null || c.getVotes() > maxVotes) {
            winner = c;
            maxVotes = c.getVotes();
            tie = false;
        } else if (c.getVotes() == maxVotes) {
            tie = true;
        }
    }

    if (winner != null) {
        if (tie && maxVotes > 0) {
            System.out.println("\nIt's a tie!");
        } else if (maxVotes == 0) {
            System.out.println("\nNo votes have been cast yet.");
        } else {
            System.out.printf("\nWinner: %s 🎉\n", winner.getName());
        }
    }
}

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}  
}
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public class Main {  
    public static void main(String[] args) {  
        Election election = new Election();  
  
        election.addCandidate(new Candidate(1, "Candidate A"));  
        election.addCandidate(new Candidate(2, "Candidate B"));  
        election.addCandidate(new Candidate(3, "Candidate C"));  
  
        election.addVoter(new Voter(101, "Pravin"));  
        election.addVoter(new Voter(102, "Ravi"));  
        election.addVoter(new Voter(103, "Meena"));  
  
        Scanner sc = new Scanner(System.in);  
  
        String cont;  
        do {  
            System.out.print("Enter Voter ID to Login: ");  
            int voterId = sc.nextInt();  
  
            Voter voter = election.loginVoter(voterId);  
  
            if (voter == null) {  
                System.out.println("Invalid Voter ID! Access Denied.");  
            } else {  
                System.out.println("Welcome " + voter.getName() + "!");  
                election.showCandidates();  
  
                System.out.print("Enter Candidate ID to Vote: ");  
                int candidateId = sc.nextInt();  
  
                election.castVote(voter, candidateId);  
            }  
  
            System.out.print("\nContinue voting? (yes/no): ");  
            cont = sc.next().trim().toLowerCase();  
        } while (cont.equals("yes"));  
  
        election.showResults();  
        sc.close();  
    }  
}
```