

1.	Write a program to input the age of a person and check if the age of the person is greater than or equal to 18 then print the message: "You are eligible to cast your vote".
code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class program1 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter your age :"); int age = sc.nextInt(); if (age >= 18) { System.out.println("You are eligible to cast your vote"); } else { System.out.println("You are not eligible"); } } } </pre>
Output .	Enter your age :19 You are eligible to cast your vote
2.	Alice visited SUM hospital to get treatment for her fever and illness. Doctor advised her to drink at least 5000 ml of water each day. Alice drank x ml of water today. Write a program that print the following message depending on the value of x. "Yes, Alice is following doctor's advice" OR "No, Alice is not following doctor's advice"
Code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class program2 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter the amount of you drink (ml) :"); int water = sc.nextInt(); if (water > 5000) { System.out.println("Yes , Alice is following doctor's advice"); } else { System.out.println("No , Alice is not following doctor's advice"); } } } </pre>

Output.	Enter the amount of you drink (ml) :6000 Yes , Alice is following doctor's advice
3.	Write a program that reads three integers from the user and prints "Increasing" if the numbers are in increasing order, "Decreasing" if the numbers are in decreasing order, and "Neither increasing nor decreasing order" otherwise.
Code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class program3 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter your 1st Number :"); int first = sc.nextInt(); System.out.print("Enter your 2nd Number :"); int second = sc.nextInt(); System.out.print("Enter your 3rd Number :"); int third = sc.nextInt(); if (first < second && second < third) { System.out.println("Increasing"); } else if (first > second && second > third) { System.out.println("Decreasing"); } else { System.out.println("Neither Increasing and Decreasing"); } } } </pre>
Output.	Enter your 1st Number :241 Enter your 2nd Number :345 Enter your 3rd Number :4563 Increasing Enter your 1st Number :345 Enter your 2nd Number :145 Enter your 3rd Number :563 Neither Increasing and Decreasing

	Enter your 1st Number :45 Enter your 2nd Number :14 Enter your 3rd Number :3 Decreasing
4.	Make a simple game involving a computer and a user. The computer first guesses a number between 1 and 9 inclusive, then ask the user to enter a number between 1 and 9 inclusive. If the user guess is correct then display "You got it right", if the guess is close (+1, -1) "Almost got it ", Otherwise "You got it wrong".
Code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class program4 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter user Number :"); int user = sc.nextInt(); int c_num = (int)(10*Math.random() + 1); System.out.println("Computer Guess : " + c_num); if (user == c_num) { System.out.println("You got it right"); } else if (user + 1 == c_num user - 1 == c_num) { System.out.println("Almost got it"); } else { System.out.println("You got it wrong"); } } } </pre>
Output.	Enter user Number :3 Computer guesses : 7 You got it wrong Enter user Number :2 Computer guesses : 2 You got it right Enter user Number :8 Computer guesses : 7

	Almost got it										
5.	Write a Java program that takes a year from user and print true if that year is a leap year otherwise print false.										
Code.	<pre>import java.util.*; public class test2 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter the year : "); int year = sc.nextInt(); if (year % 4 == 0) { System.out.println("This is a leap year"); } else { System.out.println("This is not a leap year"); } } }</pre>										
Output.	<p>Enter the year : 2023 This is not a leap year</p> <p>Enter the year : 2024 This is a leap year</p>										
6.	<p>Write a java program to calculate the monthly electricity bill. The tariff is given as follows:</p> <table border="1"> <thead> <tr> <th>Price per unit</th> <th>Unit range</th> </tr> </thead> <tbody> <tr> <td>Rs. 3/-</td> <td>First 50 units</td> </tr> <tr> <td>Rs. 4.80/-</td> <td>50-200 units</td> </tr> <tr> <td>Rs. 5.80/-</td> <td>200-400 units</td> </tr> <tr> <td>Rs. 6.20/-</td> <td>Above 400 units</td> </tr> </tbody> </table>	Price per unit	Unit range	Rs. 3/-	First 50 units	Rs. 4.80/-	50-200 units	Rs. 5.80/-	200-400 units	Rs. 6.20/-	Above 400 units
Price per unit	Unit range										
Rs. 3/-	First 50 units										
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Rs. 5.80/-	200-400 units										
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Code.	<pre>package ASSIGNMENT_3; import java.util.Scanner; public class program6 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter the total units produced in this Month :"); int unit = sc.nextInt(); double bill_pay; if (unit < 50) { bill_pay = unit * 3; System.out.println("Your Eletricity Bill is " + bill_pay); } else if (unit < 200) {</pre>										

	<pre> bill_pay = 50 * 3 + (unit - 50)*4.80; System.out.println("Your Eletricity Bill is " + bill_pay); } else if (unit < 400) { bill_pay = 50 * 3 + 150 * 4.80 + (unit - 200) * 5.80; System.out.println("Your Eletricity Bill is " + bill_pay); } else if (unit > 400) { bill_pay = 50 * 3 + 150 * 4.80 + 200 * 5.80 + (unit - 400) * 6.20; System.out.println("Your Eletricity Bill is " + bill_pay); } } } </pre>
Output.	<p>Enter the total units produced in this Month :867</p> <p>Your Eletricity Bill is 4925.4</p>
7.	<p>From the above <i>question no. (6)</i> write a java program with a choice if the consumer wants to pay bill online. Consumer who pays their electricity bill online will get a discount of 3%.</p>
Code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class program7 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter the total units produced in this Month :"); int unit = sc.nextInt(); double bill_pay = 0; if (unit < 50) { bill_pay = unit * 3; } else if (unit < 200) { bill_pay = 50 * 3 + (unit - 50) * 4.80; } else if (unit < 400) { bill_pay = 50 * 3 + 150 * 4.80 + (unit - 200) * 5.80; } else if (unit > 400) { bill_pay = 50 * 3 + 150 * 4.80 + 200 * 5.80 + (unit - 400) * 6.20; } System.out.print("Do you want to pay online (y/n) :"); String ans = sc.next(); double discount = bill_pay * 3/100; double amount_payable = bill_pay - discount; if (ans.equals("y")) { System.out.println("Total amount is " + bill_pay); } } } </pre>

	<pre> System.out.println("Discount is " + discount); System.out.println("Amount payable is " + amount_payable); } else { System.out.println("Amount payable is " + bill_pay); } } } </pre>
Output.	<p>Enter the total units produced in this Month :867</p> <p>Do you want to pay online (y/n) :y</p> <p>Total amount is 4925.4</p> <p>Discount is 147.762</p> <p>Amount payable is 4777.638</p>
8.	Write a java program that takes the x – y coordinates of a point in the Cartesian plane and prints a message telling either an axis on which the point lies or the quadrant in which it is found.
Code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class program8 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter the x value of x and y axis : "); double x = sc.nextDouble(); double y = sc.nextDouble(); String axis = null; if (x == 0 && y == 0) { axis = "lies in orgin"; } else if (x > 0 && y > 0) { axis = "lies in first quadrant"; } else if (x < 0 && y > 0) { axis = "lies in second quadrant"; } else if (x < 0 && y < 0) { axis = "lies in third quadrant"; } else if (x > 0 && y < 0) { axis = "lies in fourth quadrant"; } else if (x == 0 && y > 0) { axis = "lies in positive y axis"; } else if (x == 0 && y < 0) { axis = "lies in negative y axis"; } else if (x > 0 && y == 0) { axis = "lies in positive x axis"; } else if (x < 0 && y == 0) { axis = "lies in negative x axis"; } } } </pre>

	<pre> } System.out.println("(" + x + "," + y + ")" + axis); } } </pre>
Output.	<p>Enter the value for x :-1.0</p> <p>Enter the value for y :-2.5</p> <p>lies in third Quadrant</p> <p>Enter the value for x :0.0</p> <p>Enter the value for y :4.8</p> <p>lies if positive y axis</p>
9.	Write a program to input 3 integer number a, b, c. Find the largest number among 3. Also find the 2 nd largest number among 3
code.	<pre> Package ASSIGNMENT_3; import java.util.*; public class program9 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter the value of a , b , c : "); int a = sc.nextInt(); int b = sc.nextInt(); int c = sc.nextInt(); int largest_number = 0; int second_largest = 0; if (a > b && a > c) { largest_number = a; } else if (b > a && b > c) { largest_number = b; } else { largest_number = c; } System.out.println("The largest number is " + largest_number); if (a > b && a > c) { if (b > c) { second_largest = b; } else { second_largest = c; } } } } </pre>

	<pre> } else if (b > a && b > c) { if (a > c) { second_largest = a; } else { second_largest = c; } } else if (a > b) { second_largest = a; } else { second_largest = b; } System.out.println("The second largest number is " + second_largest); } } </pre>																
Output.	<p>Enter the value of a , b , c :10 30 50</p> <p>The largest Number is 50</p> <p>The second largest Number is 30</p>																
10.	<p>A University conducts a 100-mark exam for its student and grades them as follows. Assigns a grade based on the value of the marks. Write a java program to print the grade according to the mark secured by the student. [Use switch-case].</p> <table> <thead> <tr> <th>Mark Range</th><th>Letter Grade</th></tr> </thead> <tbody> <tr> <td>>=90</td><td>O</td></tr> <tr> <td>>=80 AND <90</td><td>A</td></tr> <tr> <td>>=70 AND <80</td><td>B</td></tr> <tr> <td>>=60 AND <70</td><td>C</td></tr> <tr> <td>>=50 AND <60</td><td>D</td></tr> <tr> <td>>=50 AND <40</td><td>E</td></tr> <tr> <td><40</td><td>F</td></tr> </tbody> </table>	Mark Range	Letter Grade	>=90	O	>=80 AND <90	A	>=70 AND <80	B	>=60 AND <70	C	>=50 AND <60	D	>=50 AND <40	E	<40	F
Mark Range	Letter Grade																
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Code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class program10 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter you marks : "); int mark = sc.nextInt(); String grade = null; switch (mark/10) { case 9 : grade = "O"; break; case 8 : grade = "A"; </pre>																

	<pre> break; case 7 : grade = "B"; break; case 6 : grade = "C"; break; case 5 : grade = "D"; break; case 4 : grade = "E"; break; default : grade = "F"; break; } System.out.println("Your grade is " + grade); } } </pre>
Output.	<p>Enter you marks : 85</p> <p>Your grade is A</p>
HW_1	<p>Write a java program that plays the popular scissor-rock-paper game. (A scissor can cut a paper, a rock can knock a scissor, and a paper can wrap a rock.) The program randomly generates a number 0, 1, or 2 representing scissor, rock, and paper. The program prompts the user to enter a number 0, 1, or 2 and displays a message indicating whether the user or the computer wins, loses, or draws.</p>
Code.	<pre> import java.util.*; public class test8 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("scissor(0) , rock(1) , paper(2) : "); int user = sc.nextInt(); int comp = (int)(3*Math.random()); String c_play = null; String u_play = null; String w_l = null; if (comp == 0) { c_play = "scissor(0)"; } else if (comp == 1) { c_play = "rock(1)"; } else if (comp == 2) { c_play = "paper(2)"; } if (user == 0) { u_play = "scissor(0)"; } else if (user == 1) { </pre>

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        u_play = "rock(1)";
    } else if (user == 2) {
        u_play = "paper(2)";
    }

    switch(comp) {
        case 0 : switch (user) {
            case 0 : w_l = "it is a draw";
            break;
            case 1 : w_l = "you won";
            break;
            case 2 : w_l = "you loss";
            break;
        }
        break;
        case 1 : switch (user) {
            case 0 : w_l = "you loss";
            break;
            case 1 : w_l = "it is a draw";
            break;
            case 2 : w_l = "you won";
            break;
        }
        break;
        case 2 : switch (user) {
            case 0 : w_l = "you won";
            break;
            case 1 : w_l = "you loss";
            break;
            case 2 : w_l = "it is a draw";
            break;
        }
        break;
    }

    System.out.println("The computer is " + c_play + " You are " + u_play
+ " " + w_l);
    sc.close();
}
}

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Output. scissor (0) , rock (1) , paper (2) : 2
computer is rock. You are paper. you won

HW_2	Write a java program that prompts the user to enter an integer for today's day of the week (Sunday is 0, Monday is 1... and Saturday is 6). Also prompt the user to enter the number of days after today for a future day and display the future day of the week
Code.	<pre> package ASSIGNMENT_3; import java.util.Scanner; public class HW_2 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter today's date : "); int date = sc.nextInt(); System.out.print("Enter the number of days elapsed since today : "); int elapsed = sc.nextInt(); int future_day = (date + elapsed) % 7; String date_of_week_1 = null; String date_of_week_2 = null; switch (date) { case 0 : date_of_week_1 = "Sunday"; break; case 1 : date_of_week_1 = "Monday"; break; case 2 : date_of_week_1 = "Tuesday"; break; case 3 : date_of_week_1 = "Wednesday"; break; case 4 : date_of_week_1 = "Thursday"; break; case 5 : date_of_week_1 = "Friday"; break; case 6 : date_of_week_1 = "Saturday"; break; } switch (future_day) { case 0 : date_of_week_2 = "Sunday"; break; case 1 : date_of_week_2 = "Monday"; break; case 2 : date_of_week_2 = "Tuesday"; break; case 3 : date_of_week_2 = "Wednesday"; break; </pre>

	<pre> case 4 : date_of_week_2 = "Thursday"; break; case 5 : date_of_week_2 = "Friday"; break; case 6 : date_of_week_2 = "Saturday"; break; } System.out.println("Today is " + date_of_week_1 + " the future day is " + date_of_week_2); } }</pre>
Output.	<p>Enter today's date : 0</p> <p>Enter the number of days elapsed since today : 31</p> <p>Today is Sunday the future day is Wednesday</p>
HW_3	Write a java program that randomly generates an integer between 1 and 12 and displays the English month name January, February... December for the number 1, 2... 12, accordingly.
Code.	<pre> public class test10 { public static void main(String[] args) { String month = null; int r = (int)(12*Math.random()+1); switch (r) { case 1 : month = "january"; break; case 2 : month = "februry"; break; case 3 : month = "march"; break; case 4 : month = "aprill"; break; case 5 : month = "may"; break; case 6 : month = "june"; break; case 7 : month = "july"; break; case 8 : month = "august"; break; case 9 : month = "september"; break; case 10 : month = "october"; break; case 11 : month = "november"; </pre>

	<pre> break; case 12 : month = "december"; break; } System.out.print("The random month select by computer is " + month); } } </pre>
Output.	<p>Random number generated by computer is 9 and the month is September</p> <p>Random number generated by computer is 11 and the month is November</p>
HW_4	Write a java program that prompts the user to enter an integer and determines whether it is divisible by 5 and 6, whether it is divisible by 5 or 6, and whether it is divisible by 5 or 6, but not both.
Code.	<pre> package ASSIGNMENT_3; import java.util.*; public class HW_4 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("Enter the Number : "); int num = sc.nextInt(); System.out.println("Is " + num + " divisible by 5 and 6 ? " + ((num % 5 == 0) && (num % 6 == 0))); System.out.println("Is " + num + " divisible by 5 and 6 ? " + ((num % 5 == 0) (num % 6 == 0))); System.out.println("Is " + num + " divisible by 5 and 6, but not both? " + ((num % 5 == 0) ^ (num % 6 == 0))); } } </pre>
Output.	<p>Enter the Number : 10</p> <p>Is 10 divisible by 5 and 6 ? false</p> <p>Is 10 divisible by 5 and 6 ? true</p> <p>Is 10 divisible by 5 and 6, but not both? true</p>

HW_5	<p>Write a java program which displays an appropriate name for a person, using a combination of nested ifs and compound conditions. Ask the user for a gender, first name, last name and age. If the person is female and 20 or over, ask if she is married. If so, display "Mrs." in front of her name. If not, display "Ms." in front of her name. If the female is under 20, display her first and last name. If the person is male and 20 or over, display "Mr." in front of his name. Otherwise, display his first and last name. Note that asking a person if they are married should only be done if they are female and 20 or older, which means you will have a single if and else nested inside one of your if statements. Also, did you know that with an if statements (or else), the curly braces are optional when there is only one statement inside?</p>
Code.	<pre> package ASSIGNMENT_3; import java.util.*; public class HW_5 { public static void main(String[] args) { Scanner sc = new Scanner(System.in); System.out.print("What is your gender (m or f) : "); String gender = sc.next(); System.out.print("Enter your first name : "); String first_name = sc.next(); System.out.print("Enter your last name : "); String last_name = sc.next(); System.out.print("Enter your age : "); int age = sc.nextInt(); if (gender.equals("f")) { if (age >= 20) { System.out.print("Are you married, " + first_name + " (y or no) ?"); String ans = sc.next(); if (ans.equals("y")) { System.out.println("Then I shall call you Mrs. " + first_name + " " + last_name); } else if (ans.equals("n")) { System.out.println("Then I shall call you Ms. " + first_name + " " + last_name); } } else if (age < 20) { System.out.println("Then I shall call you " + first_name + " " + last_name); } } else if (gender.equals("m")) { if (age >= 20) { System.out.println("Then I shall call you Mr. " + first_name + " " + last_name); } } } } </pre>

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        } else if (age < 20) {
            System.out.println("Then I shall call you " + first_name + " "
+ last_name);
        }
    }
}
}

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Output.

What is your gender (m or f) : f
Enter your first name : gita
Enter your last name : pattanaik
Enter your age : 24
Are you married, gita (y or no) ?y
Then I shall call you Mrs. gita pattanaik

What is your gender (m or f) : m
Enter your first name : ashok
Enter your last name : mohanty
Enter your age : 23
Then I shall call you Mr. ashok mohanty