

Java module 1

Exercises Day 2

1.1 - Conditionals	Entering a club
Instructions	Request the user's age. If they're 18 or older, print "Welcome to the club!"
Expected output example 1	How old are you? >>>25 Welcome to the club!
Expected output example 2	How old are you? >>>13
Solution	<pre>import java.util.Scanner; public class Ex11 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("How old are you? "); int age = scanner.nextInt(); if (age >= 18) { System.out.println("Welcome to the club!"); } scanner.close(); } }</pre>

1.2 - Conditionals	Exam result
Instructions	Request the user for their exam result. If their score is 50 or above, print "You passed the exam!", otherwise print "You failed the exam".
Expected output example 1	Enter your exam score: >>>65 You passed the exam!
Expected output example 2	Enter your exam score: >>>13 You failed the exam.

Solution	<pre> import java.util.Scanner; public class Ex12 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Enter your exam score: "); int score = scanner.nextInt(); if (score >= 50) { System.out.println("You passed the exam!"); } else { System.out.println("You failed the exam."); } scanner.close(); } } </pre>
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1.3 - Conditionals	Buying tickets
Instructions	<p>When buying movie tickets, if you're a student, the ticket price is 10€, otherwise the ticket price is 15€.</p> <p>Ask the user how many tickets they need and if they are a student, then print the total amount to be paid for the tickets.</p>
Expected output example 1	<p>How many tickets do you need:</p> <p>>>>3</p> <p>Do you have student discount (y/n)?</p> <p>>>>y</p> <p>Total tickets price: 30 euros</p>
Expected output example 2	<p>How many tickets do you need:</p> <p>>>>4</p> <p>Do you have student discount (y/n)?</p> <p>>>>n</p> <p>Total tickets price: 60 euros</p>
Solution	<pre> import java.util.Scanner; public class Ex13 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("How many tickets do you need: "); </pre>

	<pre> int tickets = scanner.nextInt(); scanner.nextLine(); System.out.print("Do you have a student discount (y/n)? "); String studentDiscount = scanner.nextLine(); int totalPrice; if (studentDiscount.equalsIgnoreCase("y")) { totalPrice = 10 * tickets; } else { totalPrice = 15 * tickets; } System.out.println("Total tickets price: " + totalPrice + " euros."); scanner.close(); } </pre>
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1.4 - Conditionals	Comparing numbers
Instructions	Request the user to input two numbers. If they are equal, print "The numbers are equal." If the first number is greater than the second, print "The first number is greater." Otherwise, print "The second number is greater."
Expected output example 1	Enter the first number: >>>15 Enter the second number: >>>33 The second number is greater.
Expected output example 2	Enter the first number: >>>23 Enter the second number: >>>23 The numbers are equal.
Solution	<pre> import java.util.Scanner; public class Ex14 { public static void main(String[] args) { </pre>

	<pre> Scanner scanner = new Scanner(System.in); System.out.print("Enter the first number: "); int num1 = scanner.nextInt(); System.out.print("Enter the second number: "); int num2 = scanner.nextInt(); if (num1 == num2) { System.out.println("The numbers are equal."); } else if (num1 > num2) { System.out.println("The first number is greater."); } else { System.out.println("The second number is greater."); } } </pre>
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1.5 - Conditionals	University admission
Instructions	You're checking eligibility for admission to a university. If the applicant's age is between 18 and 25, and their GPA (average result of all the grades on a 7 point scale grade) is 3.0 or above, print "Congratulations! You're eligible for admission." If the applicant meets only one of the criteria (age or GPA), print "You don't meet all the requirements." Otherwise, print "Sorry, you're not eligible for admission."
Expected output example 1	Enter your age: >>>20 Enter your GPA: >>>4.5 Congratulations! You're eligible for admission.
Expected output example 2	Enter your age: >>>26 Enter your GPA: >>>4.5 You don't meet all the requirements.
Solution	<pre> import java.util.Scanner; public class Ex15 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); </pre>

	<pre> System.out.print("Enter your age: "); int age = scanner.nextInt(); System.out.print("Enter your GPA: "); double gpa = scanner.nextDouble(); boolean ageRequirement = (age >= 18) && (age <= 25); boolean gpaRequirement = gpa >= 3.0; if (ageRequirement && gpaRequirement) { System.out.println("Congratulations! You're eligible for admission."); } else if (ageRequirement gpaRequirement) { System.out.println("You don't meet all the requirements."); } else { System.out.println("Sorry, you're not eligible for admission."); } scanner.close(); } </pre>
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2.1 - Nested Conditionals	Promotional products
Instructions	<p>The program recommends products in the promotion.</p> <p>If the buyer wants a recommendation, the program asks for a category of goods.</p> <ul style="list-style-type: none"> - if the category is "sweets," "Gummy fruit for 200 coins" is recommended; - for any other category, "Lingonberry juice for 140 coins." <p>If the buyer does not want any products in the promotion, the program politely says goodbye: "Let us know if you change your mind!"</p>
Expected output example 1	<p>Would you like promotional items (yes/no)?</p> <p>>>>yes</p> <p>Enter a category:</p> <p>>>>sweets</p> <p>Gummy fruit for 200 coins</p>

Expected output example 2	<p>Would you like promotional items (yes/no)?</p> <p>>>>no</p> <p>Let us know if you change your mind!</p>
Solution	<pre> import java.util.Scanner; public class Ex21 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Would you like promotional items (yes/no)? "); String promotional = scanner.nextLine(); if (promotional.toLowerCase().equals("yes")) { System.out.print("Enter a category: "); String category = scanner.nextLine(); if (category.toLowerCase().equals("sweets")) { System.out.println("Gummy fruit for 200 coins."); } else { System.out.println("Lingonberry juice for 140 coins."); } } else { System.out.println("Let us know if you change your mind!"); } scanner.close(); } } </pre>

2.2 - Nested Conditionals	3=1 promotion
Instructions	<p>The supermarket has launched the "1=3" promotion. The buyer can purchase any three goods, pay for the most expensive of them, and receive the others as a gift.</p> <p>Write a program that determines the highest price out of three and</p>

	prints the amount to pay.
Expected output example 1	Price of product 1: >>>1220 Price of product 2: >>>2100 Price of product 3: >>>140 Promotion! Total for three items: 2100
Expected output example 2	Price of product 1: >>>1220 Price of product 2: >>>350 Price of product 3: >>>1220 Promotion! Total for three items: 1220
Solution	<pre> import java.util.Scanner; public class Ex22 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Price of product 1: "); int price1 = scanner.nextInt(); System.out.print("Price of product 2: "); int price2 = scanner.nextInt(); System.out.print("Price of product 3: "); int price3 = scanner.nextInt(); int highestPrice = price1; if (price2 > highestPrice) highestPrice = price2; if (price3 > highestPrice) highestPrice = price3; System.out.println("Promotion! Total for three items: " + highestPrice); scanner.close(); } } </pre>

2.3 - Nested Conditionals	Happy hour discount
Instructions	<p>The supermarket asked to change their program with a special happy hour offer:</p> <ol style="list-style-type: none"> 1. If a purchase is made between 8 pm to 10 pm inclusive, then the promotion is triggered and the amount to be paid is halved. 2. If a purchase is made between 8 am to 7 pm inclusive, then there is no promotion. The program should print: "Total to pay:" and the grand total. 3. When you input at any other time, you cannot buy goods, the program should print: "The store is closed!"
Expected output example 1	Amount: >>>2000 Current time (hour): >>>20 Promotion! Total to pay: 1000.0
Expected output example 2	Amount: >>>2000 Current time (hour): >>>12 Total to pay: 2000
Solution	<pre>import java.util.Scanner; public class Ex23 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Amount: "); int amount = scanner.nextInt(); System.out.print("Current time (hour): "); int hour = scanner.nextInt(); if (hour < 8 hour > 22) { System.out.println("The store is closed!"); } else { if (hour >= 20 && hour <= 22) { System.out.println("Promotion! Total to pay: " + (amount / 2)); } else { System.out.println("Total to pay: " + amount); } } } }</pre>

	<pre> amount); } } scanner.close(); } } </pre>
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3.1 - Switch	Animal classification
Instructions	<p>Write a program that uses a switch statement to print a type of animal based on its classification.</p> <ul style="list-style-type: none"> • If the user selects “Domestic”, print “Cat, Dog” • If the user selects “Wild”, print “Lion, Tiger” • If the user selects “Marine”, print “Dolphin, Shark” • Others are Unknown classification
Expected output example 1	<p>Select an animal classification (Domestic, Wild or Marine): >>>Wild Lion, Tiger</p>
Expected output example 2	<p>Select an animal classification (Domestic, Wild or Marine): >>>Birds Unknown classification</p>
Solution	<pre> import java.util.Scanner; public class Ex31 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Select an animal classification (Domestic, Wild, Marine): "); String classification = scanner.nextLine(); classification = classification.toLowerCase(); switch (classification) { case "domestic": System.out.println("Cat, Dog"); break; case "wild": System.out.println("Lion, Tiger"); break; case "marine": System.out.println("Dolphin, Shark"); </pre>

	<pre> break; default: System.out.println("Unknown classification"); break; } scanner.close(); } } </pre>
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3.2 - Switch	Food classification
Instructions	<p>Write a program using the switch statement that prints a message for various types of food (e.g., "Fruits", "Vegetables", "Meat"). Group multiple items under a single case label.</p> <ul style="list-style-type: none"> • If the user selects "Apple", "Banana" or "Cherry", print "Fruit" • If the user selects "Carrot", "Spinach" or "Potato", print "Vegetable" • If the user selects "Chicken", "Beef" or "Pork", print "Meat" • Others are Unknown classification
Expected output example 1	<p>Enter a food: >>>Beef Meat</p>
Expected output example 2	<p>Enter a food: >>>Ice Cream Unknown classification</p>
Solution	<pre> import java.util.Scanner; public class Ex32 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Enter a food: "); String food = scanner.nextLine(); food = food.toLowerCase(); switch(food) { case "apple", "banana", "cherry": System.out.println("Fruit"); break; </pre>

	<pre> case "carrot", "spinach", "potato": System.out.println("Vegetable"); break; case "chicken", "beef", "pork": System.out.println("Meat"); break; default: System.out.println("Unknown classification"); break; } scanner.close(); } </pre>
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4.1 - Strings	Calculate the length of a String
Instructions	Write a program to request the customer for a review, thank them and print the length of their review.
Expected output	<p>Leave a travel review:</p> <p>>>>Cool!</p> <p>Thanks for the review! It is 5 characters long.</p>
Solution	<pre> import java.util.Scanner; public class Ex41 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Leave a travel review: "); String review = scanner.nextLine(); System.out.println("Thanks for the review! It is " + review.length() + " characters long."); scanner.close(); } } </pre>

4.2 - Strings	Search for words in Strings
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Instructions	<p>The owner of a restaurant is interested in whether clients like their specialties: chocolate cake and barbecue.</p> <p>Write a program that asks the user for the dishes they like and prints the search result:</p> <p>Take into account that the client's review might include uppercase and lowercase letters.</p>
Expected output	<p>Enter your favorite dishes: >>>barbecue, burger, pizza chocolate cake: not found barbecue: found</p>
Solution	<pre>import java.util.Scanner; public class Ex42 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); String dish1 = "chocolate cake"; String dish2 = "barbecue"; System.out.print("Enter your favorite dishes: "); String dishes = scanner.nextLine(); dishes = dishes.toLowerCase(); if (dishes.contains(dish1)) { System.out.println(dish1 + ": found"); } else { System.out.println(dish1 + ": not found"); } if (dishes.contains(dish2)) { System.out.println(dish2 + ": found"); } else { System.out.println(dish2 + ": not found"); } scanner.close(); } }</pre>