Java - Basics

Course Objective:

1. Understand Fundamental Programming Concepts:
    - Introduce students to the basics of programming with a focus on variables, data types, and their importance in storing and manipulating data.
2. Explore Object-Oriented Programming (OOP):
    - Familiarize students with the principles of object-oriented programming, including classes and objects, to help them understand how Java organizes and structures code.
3. Develop Decision-Making Skills:
    - Teach students how to use conditionals and control flow to create programs that can make decisions based on varying inputs and conditions.
4. Looping Constructs:
    - Enable students to use loops effectively to perform repetitive tasks, understand different loop types, and recognize appropriate scenarios for their use.
5. Manipulate and Utilize Strings:
    - Educate students on the use of the String class and its methods for manipulating text data, enhancing their ability to handle user input and text processing.
6. Encourage Creativity through a Final Project:
    - Provide students with the opportunity to apply their knowledge by designing and implementing a final project, fostering creativity, problem-solving, and project management skills.

These objectives are designed to ensure that by the end of the course, students have a comprehensive understanding of Java basics and are equipped with the skills to continue their programming journey.

Course Curriculum:

- **Lesson 1: Variables and Data Types**
    - Understand the purpose and use of variables in programming.
    - Explore different data types (int, double, char, boolean, etc.) and their applications.
    - Learn how to declare and initialize variables using appropriate naming conventions.
    - Practice exercises to reinforce the understanding of variable usage.
- **Lesson 2: Introduction to Object-Oriented Programming**
    - Grasp the basic concepts of object-oriented programming (OOP).
    - Learn about classes and objects, and how to declare them in Java.
    - Explore how to use variables and data types within classes.

    - Discuss the importance of encapsulation and how to implement it.
- **Lesson 3: Conditionals and Control Flow**
    - Understand the use of conditionals (if, else if, else) to control program flow.
    - Learn about logical operators and how to combine conditions.
    - Apply conditionals to real-life scenarios to make decisions in programs.
    - Solve exercises to practice creating condition-based logic.
- **Lesson 4: Loops**
    - Explore different types of loops (for, while, do-while) and their use cases.
    - Learn how to implement loops for repeating tasks efficiently.
    - Understand how to nest loops and when it's appropriate to use them.
    - Engage in coding exercises to solidify loop concepts.
- **Lesson 5: String Manipulation and Methods**
    - Discover the importance of the String class and its methods.
    - Learn how to manipulate strings using various string methods (e.g., substring, indexOf, length).
    - Practice exercises to apply string manipulation in practical examples.
- **Lesson 6: Final Project**
    - Integrate all learned concepts into a comprehensive final project.
    - Guide students in designing and implementing a project of their choice, encouraging creativity and problem-solving.
    - Provide feedback and support during project development.
    - Conclude with presentations where students showcase their projects, highlighting their understanding and skills.

Contact Us: **contact@brilliolearning.com**