

# BCA Assignment: Java Programming and Dynamic Webpage Design

Total Marks: 15 Submission Deadline: 5th November, 2025

## General Instructions:

1. This assignment consists of four separate questions. Answer all of them.
  2. **Mandatory:** In your Java code, you must use your own name in at least one variable (e.g., `String [yourName]_data`).
  3. You must submit a **single PDF document** containing:
    - The complete source code for all questions.
    - Screenshots of your output for each question.
  4. You must upload all your code files (Java and HTML) to a **public GitHub repository** and include the **repository link** on the first page of your PDF.
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## Question 1: Core Java Concepts (4 Marks)

Write a single Java program that demonstrates classes, inheritance, arrays, and exception handling.

1. Create a class named `Student` with properties for `name` (String) and `rollNo` (int).
2. Create a class named `BCAStudent` that **inherits** from `Student` and adds a property for `semester` (int).
3. In your `main` method, create an **Array** of 3 `BCAStudent` objects.
4. Use a `for` loop (**control structure**) to print the details of all students.
5. Include a `try-catch` block to handle a potential **exception**, such as an `ArrayIndexOutOfBoundsException` or `NumberFormatException` (you can demonstrate this with a simple hard-coded example).

## Question 2: AWT & Event Handling (4 Marks)

**Task:** Create a simple AWT application that shows your understanding of controls and listeners.

1. Create a Java application using `Frame`.
2. Use a `FlowLayout` (**layout manager**).
3. Add the following **AWT controls**:
  - A `Label` (e.g., "Enter your name:").
  - A `TextField`.
  - A `Button` (e.g., "Click Me").
4. Add an `ActionListener` (**event handling**) to the button.
5. When the button is clicked, the program should get the text from the `TextField` and print it to the console (e.g., "Hello, [Name]").

### Question 3: Networking & JDBC (4 Marks)

**Task:** This question has two small, separate parts.

**Part A: Networking (2 Marks)** Write a simple **TCP Server and Client**.

- `TCPClient.java`: Should send a single message (e.g., "Hello from [YourName]") and print the server response.
- `TCPServer.java`: Should listen, receive the message, and print it to the console, and reply with some modification to the string (eg: Converting it to uppercase)

**Part B: JDBC (2 Marks)** Write a standalone console program that connects to a MySQL database and inserts one record.

1. **Load the Driver** and **Establish a Connection** to your database.
2. Create a `PreparedStatement` object.
3. Execute an SQL `INSERT` command to add one hard-coded record (e.g., your name and roll number) into a `students` table.
4. Print "Connection Successful" and "Record Inserted" to the console. (*You must create the database and table in MySQL yourself beforehand*).

### Question 4: HTML Page (3 Marks)

**Task:** Create a single HTML file named `profile.html` that serves as your personal profile page.

This page must use all of the following:

- `<h1>` for your name and `<h2>` for sections (e.g., "My Skills").
- A `` with your Student ID.
- A paragraph `<p>` containing **bold** (`<b>`) and *italic* (`<i>`) text.
- A **horizontal rule** (`<hr>`) to separate sections.
- An **image** (`<img>`) of your college logo (you can find one online).
- A **line break** (`<br>`) within a paragraph.
- A simple `<table>` that lists at least 3 of your subjects.
- A simple `<form>` with a `text input` field for "Username" and a "Submit" **button**.
- An **anchor tag** (`<a>`) that links to your GitHub repository for this assignment.
- A **special character** (e.g., the copyright symbol `&copy;` 2025).