

# Build Challenge Instructions

Review the requirements and submit your completed challenge

## Overview

Complete the coding challenge assignments using Java or Python. Each assignment tests specific programming competencies and should be implemented with best practices.

## Implementation Steps

- Create new Java or Python project in IDE
- Implement required classes
- Write comprehensive unit tests
- Document code with comments

## Assignment 1: undefined

- Required: true
- Languages:
  - - java
  - - python
- Short Description: Implement producer-consumer pattern with thread synchronization
- Testing Objectives:
  - - Thread synchronization
  - - Concurrent programming
  - - Blocking queues
  - - Wait/Notify mechanism
- Detailed Description: Implement a classic producer-consumer pattern demonstrating thread synchronization and communication. The program will simulate concurrent data transfer between a producer thread that reads from a source container and places items into a shared queue, and a consumer thread that reads from the queue and stores items in a destination container.

## Assignment 2: undefined

- Required: true
- Languages:
  - - java
  - - python
- Short Description: Perform data analysis using appropriate API on CSV data
- Testing Objectives:
  - - Functional programming
  - - Stream operations
  - - Data aggregation
  - - Lambda expressions
- Detailed Description: Develop a application that demonstrates proficiency with the Streams by performing various aggregation and grouping operations on sales data provided in CSV format. The program will read data from a CSV file and execute multiple analytical queries using functional programming paradigms. Select or construct a CSV dataset that you feel best fits the problem and document your choices and assumptions as part of your solution.

## Deliverables

- Public GitHub repository URL
- Complete source code
- Unit tests for all analysis methods
- README with setup instructions and sample output
- Results of all analyses printed to console