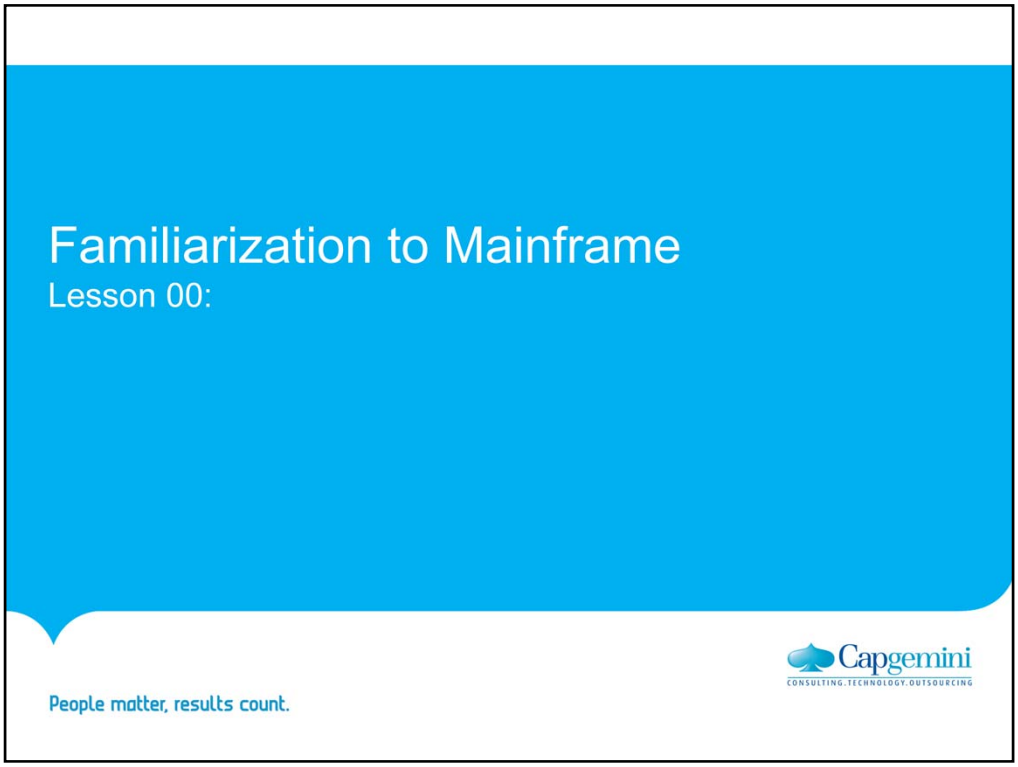

Course Goals and Non Goals

- Course Goals
  - To learn about how to write good program by understanding concepts like
    - Readability
    - Maintainability
    - Modularity
    - Defensive programming
  - To learn about how to write pseudocode in design phase
  - To develop robust programs by performing Code Reviews and Unit Testing (test cases/results)
  - Understanding Software testing

- Course Non Goals
  - To learn any specific language features in this course. (Language features will be covered in subsequent modules.)

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Intended Audience

- Programmers

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Day Wise Schedule

- Day 1
  - Lesson 1: Introduction to program development with pseudocode
  - Lesson 2: Good Programming Practices
  - Introduction to Mainframe
- Day 2
  - Lesson 3: File Handling and refactoring
  - Working with Mainframe
- Day 3
  - Lesson 4: Exception Handling
  - Lesson 5: Software Reviews and Testing
  - Working with Mainframe
- Day 4
  - Working with Mainframe

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- Lesson 1: Introduction to program development with pseudocode
  - 1.1 Introduction to Programs
  - 1.2 Types of projects
  - 1.3 SDLC process of waterfall model
  - 1.4 Introduction to Pseudocode
    - What is Pseudocode?
    - Why Pseudocode?
    - How to write Pseudocode?
    - Best practices of writing pseudocode
    - Example of Pseudocode
  - 1.5 Usage of variables and operators
  - 1.6 Introduction to control constructs
    - Conditional Statement
    - Looping statement
    - Guidelines for conditional and looping statements
  - 1.7 Introduction to arrays

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- Lesson 2: Good Programming Practices
  - 2.1 Readable
    - Naming Conventions
    - Comments
    - Guidelines for writing good code
  - 2.2 Maintainable
    - Remove Hardcoded constants
  - 2.3 Modular
    - Introduction to subroutines
    - Characteristics of well defined subroutines
    - Best practices to follow when creating subroutines
    - Guidelines to follow while using arguments in subroutines
    - Best practices to follow for return values from subroutines
  - 2.4 Coupling and Cohesion
  - 2.5 Robust program
    - Difference between correctness and robustness

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- Lesson 3: File Handling & Refactoring
  - 3.1 Introduction to Records and File Handling
  - 3.2 Refactoring
    - Benefits of refactoring
    - Match each refactoring task to the code issue it addresses
  - 3.3 Common Coding Mistakes - How to avoid them?
- Lesson 4: Exception Handling
  - 4.1 What is exception handling?
    - Guidelines for creating exceptions
    - Importance of Exception Handling
  - 4.2 Case study
  - 4.3 Defensive Programming
    - What is Defensive Programming
    - Purpose of defensive programming
    - Techniques of defensive

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- Lesson 5: Software Reviews and Testing
  - 5.1 What is software Testing?
  - 5.2 What is Debugging?
    - Debugging Techniques
    - Difference between testing and debugging
  - 5.3 Software Testing Principles
  - 5.4 TestCase
    - What is Test case?
    - How to write Test case
    - Guidelines for implementing test cases
    - Example of Test case
  - 5.5 Exhaustive Testing and Economics of Testing
  - 5.6 Testing Techniques
    - Static Testing
    - Dynamic Testing

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- 5.7 Static Testing
  - Self review
  - Peer Review
  - Group Review
- 5.8 Dynamic Testing
  - Blackbox Testing
  - WhiteBox Testing
- 5.9 Testing Approaches
  - Unit Testing
  - Integration Testing
  - System Testing
  - Verification and Validation testing
  - Acceptance Testing
  - Regression testing

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References

- Expert MVS/XA JCL - Mani Carathanassis
- MVS/JCL - Doug Lowe

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Next Step Courses (if applicable)

- MVS
- JCL
- COBOL
- VSAM
- CICS
- DB2

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