JAVA BACKEND DEVELOPMENT PROGRAM

Introduction

OVERVIEW

- Timeline
- Assignment
- Your KPI
- Policies
- Professionalism
- Evaluation
- Java Introduction

TIMELINE

- Week1-2 : Java SE, Database, JDBC, Maven. *Evaluation*
- Week 3: Web Application, Spring, Spring Boot, Spring MVC, JSP. *Personal Project*
- Week 4: Hibernate. *Personal Project Extension*

TIMELINE

- Week 5: Spring Advance (Spring Security, Spring AOP), Async Programming
- Week 6: Testing, Message Queue, NoSQL
- Week 7: Microservice
- Week 8: *Team Project*

TIMELINE

- Resume
- Overall Mock
- Marketing
- Offer 🎉

WEEKLY ROUTINE

- Monday
  - 9:00 A.M. ~10:15 A.M. EDT : Coding Mock (2 medium)
  - 10:30 A.M. ~ 12:00 A.M. EDT : Short Answer Mock
  - 3:00 P.M. EDT : Meeting

WEEKLY ROUTINE

- Tuesday - Friday
  - 10:00 A.M. ~ 12:00 P.M. EDT : Lecture
  - After 5:00 P.M. EDT* : Assignment Check

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ASSIGNMENT

- Short Answer
- Coding Questions
  - *Assignment is designed to be like real interview, which consist of short answer question and coding question.*

Short Answer:

Answer the following questions with complete sentences in your own words. You are encouraged to conduct your own research online or through other methods before answering the questions. If you research online, please consult multiple sources before you write down your answers. You are expected to be able to explain your answers in detail (Provide examples to each question).

1. What is Java variables and How to declare Java variables?
2. What are Java data types?
3. What are Primitive data types in Java?
4. What is wrapper class in Java and Why we need wrapper class?
5. What is the differences between passing by value and passing be reference?
6. What is an Immutable class in Java?
7. What is String pool in Java and why we need String pool?
8. What are the results of following expressions? Please include the calculation process.
   - 5 & 6
   - 5 | 6
   - 5 ^ 6
9. Why we need to use break statement in Switch statement?
10. What are access modifiers and their scopes in Java?
11. What is static field, static method and static class?
12. Explain the main method in Java.

Coding Questions:

Write code in Java to solve following problems. Please write your own answers. You are highly encouraged to present more than one way to answer the questions. Please follow best practice when you write the code so that it would be easily readable, maintainable, and efficient. Clearly state your assumptions if you have any. You may discuss with others on the questions, but please write your own code.

1. Develop a mathematical Calculator
   a. (2 Variables -- X=5,Y=7) -->> Add, Sub, Mul, Div
   b. (3 Variables -- X=5,Y=6,Z=7) -->> Add, Sub, Mul, Div

Hint: the input contains two array, an array of variables and an array of operators(assume no parentheses)

2. Write a Java program to convert minutes into a number of years and days.
Test Data
Input the number of minutes: 3456789
Expected Output :
3456789 minutes is approximately 6 years and 210 days

3. Using only the programming techniques you learned in this lesson, write an application that calculates the squares and cubes of the numbers from 0 to 10 and prints the resulting values in table format, as shown below. (Build-in functions are not acceptable)

ASSIGNMENT CHECK SESSION

- Generally around 5:00 P.M. EDT
  - subject to change base on trainers' schedules
- Homework Q&A
- Separate into 3 groups

ASSIGNMENT SUBMISSION

- Turn in a .zip file with file name followed by the pattern "Week1Day1 - Your Name"
- Turn in your assignment through the Beaconfire Training System, deadline for assignments are usually at 9 A.M. EDT the next day.
- If, sometimes, submission is forbidden due to file size or file format, you can upload files to google drive and submit the link

ASSIGNMENT FEEDBACK

- Assignment submissions will be reviewed daily
- Feedback MAY NOT be provided for every assignment
- Solution WILL NOT be provided for any assignment
- If you have doubts on if you answered the questions correctly, please ask during the assignment check session
- If we discover any confusion among majority, we will address it in the next session

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KPI

- Your Key Performance Indicator is a weighted average of assignment, project, mock interview and professional behavior.
- Your KPI will be seen by our managers and marketers
- KPI is directly related to your stipend

KPI BREAKDOWN

- Homework: 5%
- Project: 40%
- Mock Interview : 50%
  - Correctness
  - Communication
- Professional Behavior: 5%

STIPEND BREAKDOWN

- Each month you will be ranked according to your KPI
- Your stipend will be ranged from $600 to $1000 based on KPI
- Check in each morning in WeChat group before 9.00 A.M EST
- 3 Lateness will result in a deduction of your stipend by $100.

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POLICIES

- Slide — Prepare and Review
- Meeting — Take notes and open camera (mandatory)
- Assignment — On time and by yourself

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PROFESSIONALISM

- Be Responsive
  - Reply confirmation in WeChat group upon receiving any related materials.
    - Slides
    - Assignment
    - Announcement
  - Use professional language
  - In English
  - Within 10 mins of receiving during working hour

PROFESSIONALISM

- Be Problem Solvers & Self-Motivated
    - We are always here to help you, **however**, please try to solve the problems yourself before reaching out to us. Come to us with not only your questions but also your attempted solutions.
        - Do your own research
        - Discuss with your colleagues

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EVALUATION

- No mandatory filtering
- KPI based

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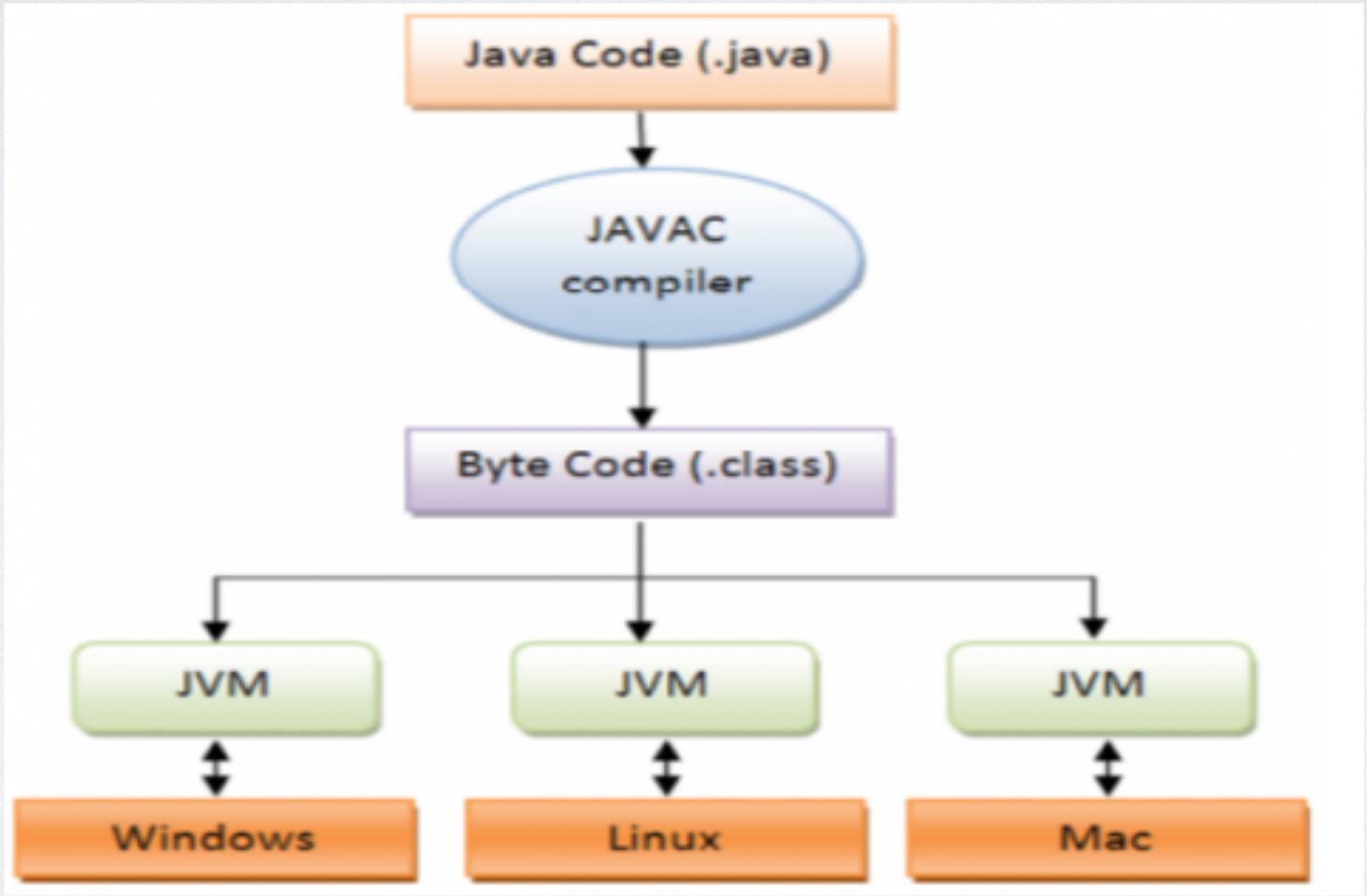
WHAT IS JAVA

- Object-oriented Programming Language
- Write Once Run Anywhere
- Widespread Acceptance
- Designed for easy web application development

JVM JRE JDK


Java Code (.java)
JAVAC
compiler
Byte Code (.class)
JVM
JVM
JVM
Windows
Linux
Mac

JAVA VIRTUAL MACHINE

- A virtual machine that enables a computer(MacOS, Windows, Linux) to run Java program as well as programs written in other languages that also compiled to Java Bytecode.

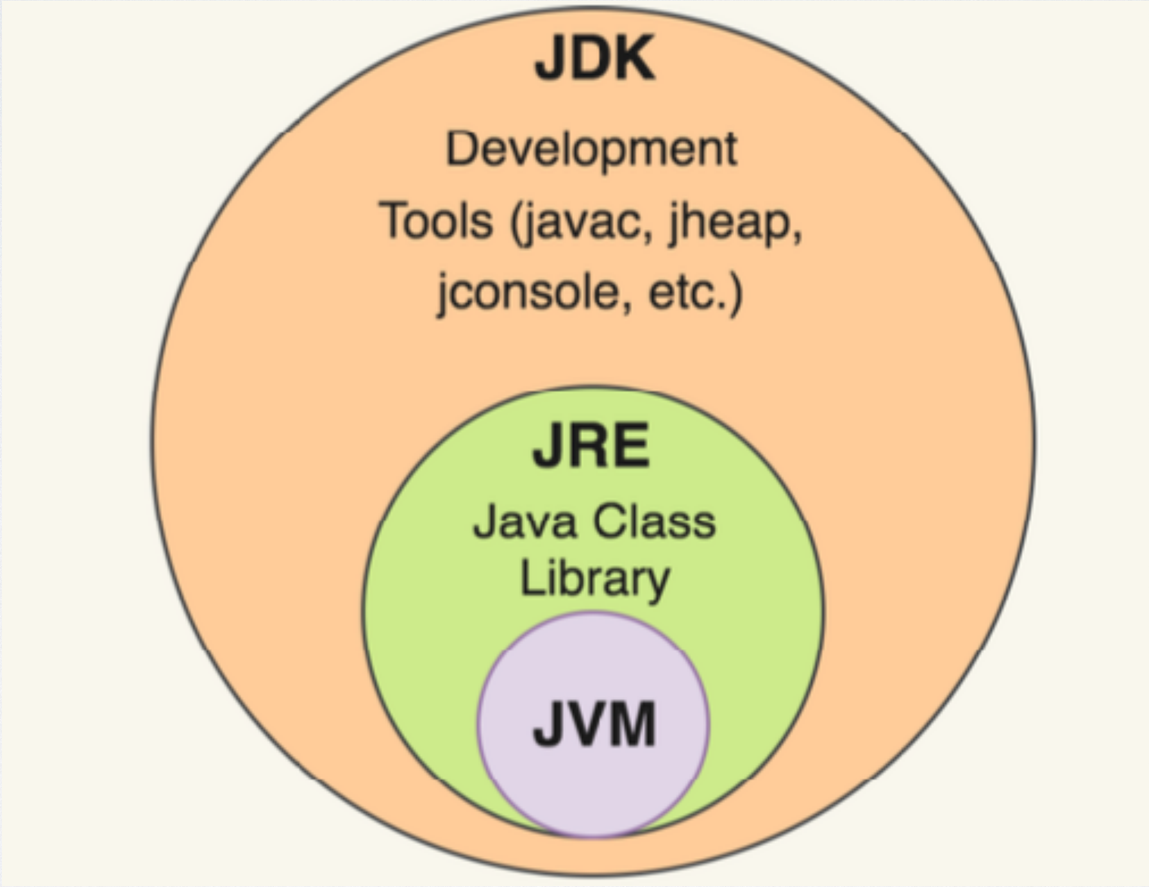
- Java Bytecode: A compiled file generated by Java compiler

JRE & JDK

- Java Runtime Environment: A package of everything needed to run a complied Java program. It includes the JVM, the Java Class Library and all Java commands.

- Java Development Kit: It has everything JRE has, but also the Compiler and other tools. It is capable of creating and compiling programs.

JVM JDK JRE


JDK
Development
Tools (javac, jheap,
jconsole, etc.)
JRE
Java Class
Library
JVM

QUESTIONS?