REVATURE

Java with Automation v3.1

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 1 **Java**	• Installation: Git • Installation: Java 8 • Introduction to Java • Intro to git (add, push, pull, commit, clone) • JDK, JRE, JVM • Class vs Object • First Java Program: HelloWorld • Control Flow Statements • Stack and Heap • Packages and Imports • Constructors • Methods and Parameters • Variable Scopes • Annotations • Garbage Collection • Dependency Injection • Day 1 Hackerrank Assessment	• Access Modifiers • Non-access modifiers • Arrays, Var-args, for-each loops • String API • StringBuilder, StringBuffer • Wrapper Classes • Interfaces • Abstract Classes • Exception Hierarchy • Pillars of OOP • Exception Handling or Declarations • Try-with-resources • Multi-catch blocks • Custom Exceptions • Checked vs Unchecked Exceptions • Iterator interface	• Object class • Read from console (Scanner) • Collection API • Lists • Sets • Queues • Maps • ArrayList and LinkedList • HashSet and TreeSet • ArrayDeque and PriorityQueue • Iterable Interface • Generics • Functional Interfaces • Lambdas • Optional Class • Comparable Interface • Comparator interface	• Intro to TDD and Unit Testing • Thread Class • Synchronization • Runnable Interface • States of a Thread • Multithreading • Deadlock • Livelock • Producer / Consumer problem • Overview of Logging • Logging Levels • Setting Logging Threshold • Maven Repositories • Project object model (POM) • Project Coordinates • Maven Lifecycles	• Positive vs Negative Testing • JUnit Overview • Order tests in JUnit • Test case vs Test suite • Test for exceptions using JUnit • JUnit Annotations • Assert Methods • Creational: Singleton • Creational: Factory • SOLID Design Principles	• JDK 1.8 • Maven 3.X • Eclipse: Spring Tools Suite

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 2 **Javalin/SQL**	Written evaluations Individual interviews Quality Control Audit • Introduction to Webservice • Introduction to HTTP • Week 2 Day 1 Hackerrank Activity	• REST naming conventions • Introduction to Javalin • HTTP Handlers • JSON Overview • Exception/Error Mapping • Postman • Newman (Optional)	• Introduction to DBMS • AWS RDS • AWS - MariaDB (Oracle Syntax) • DDL - Data Definition Language • DML - Data Manipulation Language • DQL - Data Query Language • DCL - Data Control Language • TCL - Transaction Control Language • Defining Schema • Constraints • Scalar functions • Aggregate functions	• Referential Integrity • Table relationships / multiplicity • Normalization • Atomicity • Consistency • Isolation • Durability • Read phenomena • Inner / Outer Joins • Left / right Joins • Set Operations • Data types	• Introduction to JDBC • Introduction to Integration testing • Mocking DAO layer with Mockito • Design Pattern: Data Access Object (DAO) • Interfaces of JDBC • Setting up the Database Driver • Connection Interface • Simple & Prepared Statements • Properties file • Accessing Stored Procedures	• AWS - RDS

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Week 3 **Client side technologies**	Written Evaluation Interview - group / solo based on performance Quality Control Audit • PL/SQL • Stored Procedures vs functions • Callable Statement • Week 3 Day 1 Hackerrank Activity	• Responsive web design • Bootstrap • HTML Tags • HTML Document Structure & DOM • Elements and Attributes • Inline and Block Elements • Overview of CSS • CSS Box Model • Inline, Internal, and External Stylesheets • CSS Properties • Element Selectors • Class and Id Selectors • Cascading Nature of CSS • Specificity and Resolving Styling Conflicts • Overview of HTML • Input Elements and Input Types • Select and Multi-select • Submitting Forms • Form Elements and Its Attributes • Responsive Web Design Overview	Project 1 • JavaScript Introduction • Async/await • Data types • Variable Scopes • Type Coercion • "strict" mode • "this" keyword • OOP in JS • Selecting elements from the DOM • DOM Manipulation • Traversing the DOM • AJAX Workflow with XmlHttpRequest Object • Working with JSON in AJAX • Fetch API • let and const keywords • Arrow functions • Promises	Project 1 • Callback Functions • Bubbling, capturing • Event Object • Events & Listeners • Template literals & arrow notation	Project 1 • Intro to Automation Testing • Introduction to Jasmine • Introduction to Protractor • Introduction to Page Object Model(POM) • Writing Automation Tests • Selenium/WebDriver • E2E Testing • Week 2 Day 5 Hackerrank Activity	

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Week 4 **Hibernate / Agile / Selenium**	Project 1 Written evaluation Group interviews Quality Control Audit • Hibernate and JPA • Interfaces of hibernate • hibernate.cfg.xml file • Annotations for model classes • Week 4 Day 1 Hackerrank Activity	Project 1 • Criteria API • Native SQL • Named queries • Caching • Object states • HQL • ACID Properties • Object-relational mapping	Project 1 • Agile Scrum topics • Agile Scrum artifacts and ceremonies • Continuous Integration (CI) • In-depth with Git (branching structure, merging, merge conflicts, advanced commands, code reviews with pull requests)	Project 1 • Feature file • Automation with Cucumber and Selenium • Gherkin • Step implementations • Introduction to BDD	Project 1 • Advanced Selenium Concepts • WebDriver Setup • XPath/CSS Selectors • Automate Existing Application • PageFactory	
Week 5 **Angular**	Project 1 Written Evaluation Interviews Quality Control Audit • Node as a JS runtime; npm as a package manager • Angular CLI • Webpack • Single Page Application (SPA) • History of Angular • Package.json file • Week 5 Day 1 Hackerrank Activity	Project 1 • Introduction to TypeScript • Access modifiers/variable types • Classes & Decorators • @Component decorator • Component lifecycle methods	Project 2 • @NgModule decorator • 1-way data binding • Structural directives • Attribute directives	Project 2 • 2-way data binding • Pipes • Custom Pipes	Project 2 • Services and Dependency Injection • HttpClient • RxJS - Observables • RxJS - Subjects • Pub/Sub design pattern • Setting up routing • Week 5 Day 5 Hackerrank Activity	• Angular 8

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Week 6 **Spring / Web Services**	Project 2 Written Evaluation Interview - group or sprint retrospective Quality Control Audit • Intro to Spring • Spring IOC Container & Dependency Injection • XML vs Annotation-based configuration • Lombok • Bean lifecycle • Injecting primitives (XML) • Week 6 Day 1 Hackerrank Activity	Project 2 • @Configuration • @Bean • @Autowired • Configuration using Annotations • Spring AOP • Scopes of a bean • Stereotypes • Annotations • MVC Architecture and Annotations • Form Input with Spring • @Controller - MVC Annotations • @RequestMapping - MVC Annotations • Path Variables and Request Params • Overview of AOP and cross-cutting concerns • Advice • Pointcut and Join Points • Aspect-J • Validation	Project 2 • Exposing/Consuming REST with Spring MVC • Exception/Error Handling • Spring Data Annotations • Using Angular to make RESTful calls to a Spring controller • Spring Data • @Transactional • Transaction Propagation Strategies	Project 2 • Spring Testing Module • Spring MVC Test Framework - mocking server responses • JUnit with Spring Testing • Spring Boot • Spring Boot Actuator • Spring Boot DevTools • Spring Environments	Project 2 • REST • Web Service Testing	

	MON	TUE	WED	THU	FRI	ENVIRONMENT
Week 7 **Automation Testing/AWS**	Project 2 Written evaluation Interviews Quality Control Audit • Intro to Pyramid Testing • Testing Mindset • Features vs Defects • Test Lifecycle • Types of Testing • Defect Lifecycle • Defect Reports • Assign Group Hackerrank Research Assignment	Project 2 • Testing Documents - Test Plan, Test Strategy, Test Cases, Test Results • Test Lab - preparing the documents	Project 2 • Executing a sample Maven build • Maven Lifecycle • Continuous integration • Continuous deployment • Continuous delivery • DevOps and Agile • SonarCloud & SonarLint • Jenkins • DevOps Overview	Project 3 • AWS Introduction • AWS Regions and Availability Zones • AWS EC2 • SSH Into EC2 Instance • AMI • EC2 Autoscaling • EBS • Intro to AWS S3 • AWS S3 Bucket Configuration • Hosting Static Sites on S3 • Group discussion for Hackerrank Research Assignment	Project 3 • Security Groups • Commands: grep (lite), man, yum • Unix basics (basic shell scripting) • Presentation of Hackerrank Research Assignment	
Week 8 **Project 3 work**	Project 3 • Individual Hackerrank Assessment	Project 3	Project 3	Project 3	Project 3 Portfolios due to QC	
Week 9 **Project 3 / Panel Interviews**	Project 3 Panel Interviews	Project 3 Panel Interviews	Project 3 Portfolios all approved Panel Interviews	Project 3 Panel Interviews	Project 3 Panel Interviews	
Week 10 **Project showcase / OCA Prep**	Project 3	Project 3	Project 3	Project 3		

PROJECT	TECHNOLOGIES
Project 1	Java, Javalin, HTTP, SQL, JDBC, HTML, CSS, JavaScript, Unit Testing
Project 2	DevOps, Spring, Automation Testing, Angular, Java, REST, HTTP
Project 3	Java, Spring, Protractor, Jasmine, Selenium, Angular

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