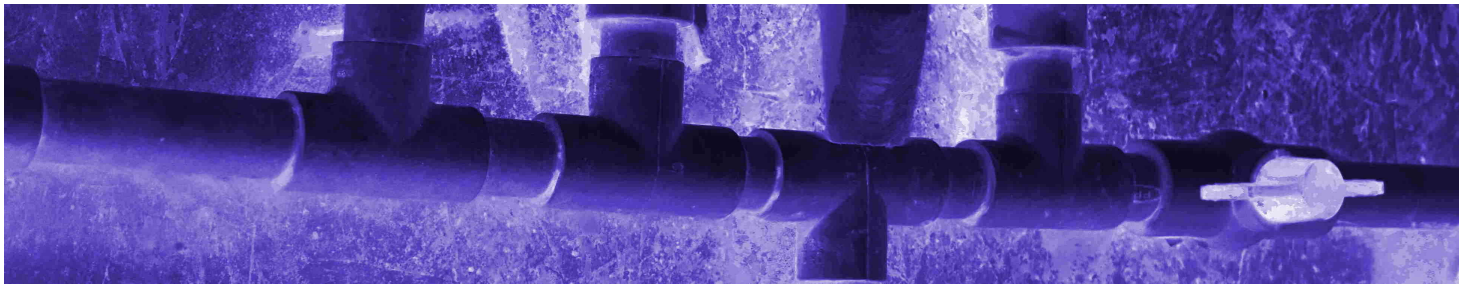

Rain water catchment system: prototype routing board after a year of weathering

revision history

Three-course java progrsesion at CCAC West Hills

The community college of allegheny county offers a three-course progression of java programming courses:

1. CIT-111: Introduction to programming with Java
2. CIT-130: Object-oriented programming 1
3. CIT-244: Object-oriented programming 2

Instructor Eric Darsow's implementation of this course sequence is offered at CCAC's West Hills Center in the Spring of 2019.

CIT-111: Introduction to Programming

The following table maps course session dates, lesson topics, LIANG9 references, and content links for all three Java courses in the series.

g

Course	SP19 Est.	Wk.	Sess.	Session description	Resources	Language objectives	Out-of-class work
CIT-111	MON 28-JAN-19	1	1	Compiling existing source code into Java programs and tinkering with their guts; Exposure to code editing tools in NetBeans; internalizing the Java system's components and their flow	**First exposure to looping mechanisms in Java** LIANG9: Chapter 1		
CIT-111	WED 30-JAN-19		2	 Too cold for school!			

Course	SP19 Est.	Wk.	Sess.	Session description	Resources	Language objectives	Out-of-class work
CIT-111	MON 4-FEB-19	2	1	Digestion of the Java source code lifecycle: .java files --> compiler --> bytecode --> JVM (interpreter). Creatign blocks with { and }	**Java's basic grammar: Blocks, Types, variables, operators, and method calls** Module 1: Essential Elements  LIANG9: Chapter 2 **Exercise 1:** Tweaking a pre-written Java console-only program **Exercise 2:**Tweaking a pre-written Java program that includes a Graphical User Interface (GUI) **Exercise 3:** Dissecting Java code by extracting blocks **Exercise 4:** Building your own Java blocks from actual blocks	**TR.111.1.L.1:** Segement Java code into blocks, statements, and comments **TR.111.1.L.2:** Classify Java code into categories: A) block structure formation B) keywords C) identifiers D) operators E) Method calls **CCAC.111.LT.1:** Computer systems and environments including computer org., langs, and object programming **TR.111.1.E.1:** Interpret the use of block-delimiting characters to create structural relationships inside a computer program **TR.111.1.E.2:** Encode a nested-block structure in a linear sequence of computer instructions **TR.111.1.E.3:** Create a rough draft of a code organization schema inside Netbeans for storing Java files related to this course **TR.111.1.P.0:** Classify job postings related to Java programming: level, application type, etc. **TR.111.1.P.1:** Diagram the relationship between the Java Virtual Machine (JVM), the NetBeans Integrated Development Environment(IDE), and a program's source and class file set **CCAC.111.LT.2:** Executing java programs using and IDE	
CIT-111	WED 6-FEB-19		2	Creating projects, packages, and source files in NetBeans Copying pre-written code and tweaking text output and variable types			
CIT-111	MON 11-FEB-19	3	1	- Right type or wrong type? Exercise - git - Introduction to branching with `if()` - Introduction to flow charting - Creating Might We Be Friends? Flow chart	**Branching fundamentals: block selection with `if()`** Module 3E: Might we be friends?  LIANG9: Chapter 3 - selections **Exercise 1:** Sharing code with git	**TR.111.3.L.1:** Branch execution flow of a simple program using `if()` controlled blocks **TR.111.3.L.2:** Implement several layers of decision logic using if-else controlled blocks **TR.111.3.E.1:** Create a graphical flow-chart of decision logic by designating unique shapes for: a) Flow	

Course	SP19 Est.	Wk.	Sess.	Session description		Language objectives	Out-of-class work
					Exercise 2: Reviewing chapter 2 with the operator challenge **Exercise 3:** Flow charting essentials - Creating your might-we-be-friends on paper **Exercise 4:** Implementing Might We Be Friends? in Java	beginnigns and endings, b) general program events, and c) branching points (a.k.a. decision points or choices) **TR.111.3.E.2:** Given a peer's program and specified program behavior, check Java code for correctly implemented logic and write detailed documetnation of any errors encountered **TR.111.1.P.1:** Clone a git repository from a remote system into a sensible location on a local system. **TR.111.1.P.2:** Create a local git repository, add files to the working directory, stage files for commit, commit files **TR.111.1.P.2:** Initialize an online repository with a readme.md	
CIT-111	WED 13-FEB-19		2	- Implementing Might We Be Friends? flow chart - Logic testing: verifying flow chart logic of peer programs			
CIT-111	MON 18-FEB-19	4	1	Paper compiling practice & finish our Might We Be Friends? exercise	**if() statements continued** Paper compiling practice Worksheet Paper compiling practice - KEY LIANG9: Chapter 2 - Elementary LIANG9: Chapter 3 - selections Module 4: User Input	**Compute the value of primitive type variables** in simple programs by hand and check those answers using a compiler **Use a Scanner object to gather input from a user and use those values to control if-statement selections**	**Attempt at least one exercise and one mini project** from each of the two LIANG9 chapters assigned this week: Chapters 2 and 3
CIT-111	WED 20-FEB-19		2	Finish up Might We Be Friends? and then start in on Module 4			
CIT-111	MON 25-FEB-19	5	1	Creating our RiderHeight class	**Implementing conditional logic: Roller coaster rider heights** Module 4: Input and flow-of-control LIANG9: Chapter 2 - Elementary LIANG9: Chapter 3 - selections	java.core.if.3: Create variable requirements and flow charts to implement a given problem constraint	
CIT-111	WED 27-FEB-19		2				
CIT-111	MON 4-MAR-19	6	1	Finish password checker program & start looping	**Looping fundamentals: the `while()` and `for()` blocks** Module 5: While() and for() loops LIANG9 Textbook: Chapter 4	Java.Looping.1: Use while() structures to implement looping behavior based on simple boolean condition comparison	
CIT-111	WED 6-MAR-19		2				
CIT-111	MON 11-MAR-19	7	1	Looping review exercise; start in on mini-project	**Looping, continued** Module 5: While() and for() loops LIANG9 Textbook: Chapter	7.L.1: 7.L.2:	

Course	SP19 Est.	Wk.	Sess.	Session description	Resources	Language objectives	Out-of-class work
CIT-111	WED 13-MAR-19		2	Continue work on either 1) The quality control checker or 2) the math quiz program			
CIT-111	MON 18-MAR-19	8	1	First hour: Finish looping project Second hour: Introduction to methods	**Methods Essentials: Empty calls and paramaterized calls** Module 1: Simple Methods and switch LIANG9 Textbook: Chapter 5 - Methods	8.L.1: 8.L.2:	
CIT-111	WED 20-MAR-19		2	Method module 1 mini project: Mystery doors			
CIT-111	MON 25-MAR-19	9	1		**Fancy Methods: Calling and writing methods with return types** Module 2: Fully-baked Methods		
CIT-111	WED 27-MAR-19		2	Method with return type / scope project worktime	**Scope: Calling and writing methods with return types** Module 3: Methods and Class Structure LIANG9 Textbook: Chapter 5 - Methods		
CIT-111	MON 1-APR-19	10	1	Fundamentals project design	**Fundamentals project** Design and implement a novel project in Java, from scratch or building upon other students' past work *Choice 1: Kennywood Ride Tracker* Module 3: Methods and Class Structure *Choice 2: Design your own project* Shared directory of student project code	JAVA.OBJECTS.FUND.1 10.L.2:	
CIT-111	WED 3-APR-19		2	Fundamentals project implementation			
CIT-111	MON 8-APR-19	11	1	Share fundamentals project at the beginning of class; Begin object modeling with the Donuts and proceed to Vehicles as time allows.	**Discovery of the Java `Object`: Creating our first blueprint classes `Donut.java` and `Vehicle.java`** Module 1: Java Modeling in `class DonutLand` Module 2: Creatures eat `SizedDonuts` Explore photos of our `Donut` objects	11.L.1: 11.L.2:	

Course	SP19 Est.	Wk.	Sess.	Session description	Resources	Language objectives	Out-of-class work
CIT-111	WED 10-APR-19		2	Continue Object modeling fundamentals	Module 4: Car Modeling in Back To The Future LIANG9 Textbook: Chapter 9 - Objects		
CIT-111	MON 15-APR-19	-	-	-			
CIT-111	WED 17-APR-19			-			
CIT-111	MON 22-APR-19	12	1	Introduction to arrays and continuing objects	**Arrays and for() looping** Module 1: Arrays Array Models Shared Google Doc LIANG9 Textbook: Chapter 6 - Arrays	12.L.1: 12.L.2:	
CIT-111	WED 24-APR-19		2	Continued exploration of objects and arrays			
CIT-111	MON 29-APR-19	13	1	Strong start to object projects	**Culminating project design & implementation** Object Project Guide Object Project Examples & Starter Seeds LIANG9 Textbook: Chapter 10 - Thinking in Objects	13.L.1: 13.L.2:	
CIT-111	WED 1-MAY-19		2	Continued work on object projects; prep for final sharing			
CIT-111	WED 8-MAY-19	14	1	* Bring fully-baked projects to share. * Same time and place as normal Wednesday class	**Sharing our culminating projects** Course planning survey	14.L.1:	

CIT-130: Object-oriented design in Java

The following table maps course session dates, lesson topics, LIANG9 references, and content links for all three Java courses in the series.

Course	SP19 Est.	Wk.	Sess.	Session description	Resources	Learning objectives	Out-of-class work
CIT-130	MON 28-JAN-19	1	1		**Fiddling with `Strings` and Arrays: Review of `Objects`, types, classes, & methods** Week 1 Module: Passwords LIANG9 Chapter 6 LIANG9 Chapter 9	CCAC.130.LO.3: Apply Java language elements to use string(sic) processing techniques in a program CCAC.130.LO.4: Apply Java language elements to create programs with single dimension arrays of primitives and objects. APply Java language elements to	