

CPS 261 – Advanced Java Concepts

This course is a continuation of the Java concepts covered in CPS 161. Topics covered include input/output, graphical user interfaces associated with AWT/Swing, data structures, networking, and multitasking (Threads). Students entering this class should have a good understanding of object-oriented programming concepts such as inheritance and polymorphism. The title of this course was previously Programming in Data Structures in Java.

1: CPS 261 Review: Interfaces, Polymorphism, Exceptions

Interfaces and Polymorphism- (15:00)

<https://www.youtube.com/watch?v=dcMVNNF6WYE&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=77>

Chess Polymorphism- (45:00)

<https://www.youtube.com/watch?v=GJ2PoUOmfgA&index=81&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Exception basics- (49:50)

<https://www.youtube.com/watch?v=IND032bbsYc&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=80>

Exception Hierarchy and Strategy- (47:50)

<https://www.youtube.com/watch?v=2S8o3EiO170&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=82>

Checked Exceptions- (36:54)

<https://www.youtube.com/watch?v=7U2Ve5PStu0&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=83>

2: ArrayList/Generics (beginning Data Structures), Input/Output

Beginning ArrayList Concepts- (16:28)

<https://www.youtube.com/watch?v=ifuOn2S2IKY&index=76&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

ArrayList Intro & MyArrayList- (39:46)

https://www.youtube.com/watch?v=-28QiN7ns_M&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=75

Generics- (30:10)

<https://www.youtube.com/watch?v=OcjclXOp3UM&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=74>

Print Screen Scanner Constructors- (17:43)

<https://www.youtube.com/watch?v=w0iBpJOBu0&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=73>

More Complicated Scanner Data- (23:10)

<https://www.youtube.com/watch?v=cc17iAvfpW0&index=1&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Buffering Performance- (10:41)

<https://www.youtube.com/watch?v=Ofktj3Cz2xo&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=72>

3: Input/Output continued

ObjectOutputStream / ObjectInputStream- (26:00)

<https://www.youtube.com/watch?v=FzYAOM31Vky&index=71&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Pausable Tic Tac Toe Using Serializable- (25-31)

<https://www.youtube.com/watch?v=HEtEeKPI3YQ&index=68&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

File Class- (27:32)

<https://www.youtube.com/watch?v=Zquvl60Tah0&index=78&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Recursion Using File Class- (24:39)

<https://www.youtube.com/watch?v=WpxC0p0hS8M&index=70&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Alternative to Recursion: Stack Approach- (7:50)

https://www.youtube.com/watch?v=l68esmXH_No&index=65&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs

Random Access File Class- (26:00)

<https://www.youtube.com/watch?v=oYBIgiUmZVk&index=69&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Character Stream Classes- (16:00)

<https://www.youtube.com/watch?v=VkQv4AjUd-A&index=67&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

System Properties- (5:26)

<https://www.youtube.com/watch?v=lZvjTYwiNFM&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=66>

4: Drawing Basics

Drawing Basics- (45:00)

<https://www.youtube.com/watch?v=TEqvAxU5YWA&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=64>

Drawing Sizing- (49:00)

<https://www.youtube.com/watch?v=-3G-NKzOFa4&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=63>

Drawing Images- (52:00)

<https://www.youtube.com/watch?v=AGZ1AyMOqjM&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=62>

5: User Inputs and Animation

User Input Mechanisms- (47:57)

<https://www.youtube.com/watch?v=2wqYjKN6biU&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=61>

Animation And Simple Threads- (38:18)

https://www.youtube.com/watch?v=pkiwkpu_Caw&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=59

Shape Drawing- (50:00)

<https://www.youtube.com/watch?v=c1hyu0so91A&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=58>

GUI Component High Level- (27:00)

<https://www.youtube.com/watch?v=taHGcNx-vA&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=60>

6: GUI Components

GUI Component Basics- (44:00)

<https://www.youtube.com/watch?v=SW-uR5hdMZ8&index=53&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

GUI LayoutManagers- (24:00)

<https://www.youtube.com/watch?v=JUgabVmxFA&index=56&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

GUI Menus- (14:00)

<https://www.youtube.com/watch?v=grnjKrn0Uec&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=57>

GUI More Book Examples- (27:00)

<https://www.youtube.com/watch?v=N0Y2ZZ41R-E&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=55>

GUI Additional Examples- (33:00)

<https://www.youtube.com/watch?v=h-3hm9F4dwE&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=54>

Advanced Web Features- (8:48)

<https://www.youtube.com/watch?v=DOMfU7QI7KM&index=84&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

7: Threads & Networking

How to be a Good Programmer- (25:47)

<https://www.youtube.com/watch?v=ACrfjssOwsk&index=85&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Thread Fundamental- (21:45)

<https://www.youtube.com/watch?v=pFNojx6vr1g&index=51&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Thread Synchronization- (26:00)

<https://www.youtube.com/watch?v=ZiqicTy2Vak&index=52&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Thread Wait Notify Capabilities- (40:50)

<https://www.youtube.com/watch?v=6yAVFN1B5og&index=50&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Networking: TC/IP and Basic Sockets- (29:55)

<https://www.youtube.com/watch?v=AVbdf--py8Y&index=47&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Networking: Better Server Protocol Handlers- (22:32)

<https://www.youtube.com/watch?v=4IOLcEnO2AM&index=49&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

JH5 Help- (12:00)

<https://www.youtube.com/watch?v=f25LGCmt5XE&index=48&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

8: Networking continued & Networked Games

Networking Extra Odds and Ends- (33:00)

<https://www.youtube.com/watch?v=5wxIA21zq-A&index=44&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

MVC, gameNet High Level- (40:00)

<https://www.youtube.com/watch?v=LH9c6OuxNmY&index=46&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

gameNet Interfaces- (26:31)

<https://www.youtube.com/watch?v=XyiwRnoc5DE&index=45&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Tic Tac Toe Lecture Video (31:00)

https://www.youtube.com/watch?v=Kmj_4_NLWME&index=43&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs

9: Networked Games

Rock Paper Scissors- (26:50)

<https://www.youtube.com/watch?v=00VRDUu9h2k&index=42&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Chess With No Brains- (38:50)

https://www.youtube.com/watch?v=oOtv_1ORAxk&index=38&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs

Quick Click- Threaded game- (26:00)

<https://www.youtube.com/watch?v=qhbKqHC4Wxg&index=41&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Pong- (28:00)

https://www.youtube.com/watch?v=_9goJ0lnXHQ&index=40&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs

Networked Drawing Program- (31:00)

<https://www.youtube.com/watch?v=fGuXjfaEI1k&index=39&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

10: Data Structures: Generics, Collection, List

Optional Video- (15:00)

<https://www.youtube.com/watch?v=046HIfpiQUg&index=35&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Collection and List Interfaces- (53:00)

<https://www.youtube.com/watch?v=1kbe6wjj1cU&index=33&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Performance: List Interface- (21:00)

<https://www.youtube.com/watch?v=09MimLaXX0Y&index=37&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Performance: Algorithms- (25:00)

<https://www.youtube.com/watch?v=BHiuooXKWss&index=36&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

LinkedList Implementations- (49:00)

<https://www.youtube.com/watch?v=dBBq7iu44k0&index=34&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

11: Data Structures: Performance, LinkedList, Set

Set Basics- (36:50)

https://www.youtube.com/watch?v=_dM82_ntL20&index=31&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs

Set Examples- (21:00)

<https://www.youtube.com/watch?v=r0SJCLla5Fc&index=32&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

MyHashSet- (34:00)

<https://www.youtube.com/watch?v=RpQ4fI8XywM&index=30&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Stack Parenthesis- Checker- Help for MP6- (21:00)

<https://www.youtube.com/watch?v=ctADCxBSu6w&index=29&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

12: Data Structures: HashSet, Maps, Summary

My TreeSet Data Structure- (37:50)

<https://www.youtube.com/watch?v=hOLiymVfQSU&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=26>

More Tree Theory- (39:50)

https://www.youtube.com/watch?v=g-_pWqQVjIY&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=28

Map Sorted Map Interfaces- (52:00)

<https://www.youtube.com/watch?v=weODp07I120&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=22>

Cross Reference Program- (12:00)

<https://www.youtube.com/watch?v=Uhp7EA9YeNo&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=27>

Data Structure Summary- (8:00)

<https://www.youtube.com/watch?v=WIYumSxj1nc&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=25>

13: Fun Things, Extra Content (these extra are not on the final)

Running Java Programs Outside Of Eclipse- (14:58)

<https://www.youtube.com/watch?v=CpDRGFNr8Uw&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=24>

Playing Sounds in Java- (18:04)

<https://www.youtube.com/watch?v=CBx0YeLqYgl&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=23>

JUnit Testing Basics- (21:46)

<https://www.youtube.com/watch?v=MN1X6R4W4Ic&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=20>

Regular Expressions- String Methods- (12:34)

<https://www.youtube.com/watch?v=C2Ob7eWp2cA&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=19>

JUnit Testing Basics- (13:22)

<https://www.youtube.com/watch?v=MN1X6R4W4Ic>

Regular Expressions- Matching- (14:17)

<https://www.youtube.com/watch?v=OywPGBKUx5k&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=21>

Regular Expressions- Substrings- (26:23)

<https://www.youtube.com/watch?v=enyjkIMracE&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=18>

Recursion and Stacks Basics- (48:50)

<https://www.youtube.com/watch?v=ANSp9SQcB8s&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=15>

Recursion: Towers of Hanoi- (15:00)

<https://www.youtube.com/watch?v=WlvDHXICPNk&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=17>

N-Queens Recursion vs. Stack Algorithm- (32:00)

<https://www.youtube.com/watch?v=w8fBQ3EWjwI&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=14>

Maize Stack Algorithm- (40:50)

<https://www.youtube.com/watch?v=d-KCGLJ7QAM&index=16&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

14: Graphics2D Fun Things, Extra Content (these extras are not on the final)

Basic Stroke Class- (12:20)

<https://www.youtube.com/watch?v=YMwvKeesOPY&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=12>

Animation Techniques- (6:09)

<https://www.youtube.com/watch?v=t3QG8wZZqKM&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=13>

Dashes- (9:19)

https://www.youtube.com/watch?v=Bi-u3_QVcCA&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=11

Shape Concepts- (14:29)

<https://www.youtube.com/watch?v=XVmWTbPDcBI&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=8>

Shape Fill Options- (9:28)

<https://www.youtube.com/watch?v=yPQuCI2rZSA&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=9>

Transformations- using AffineTransformations- (17:13)

<https://www.youtube.com/watch?v=506sHEGSKJQ&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=10>

Composition- (10:48)

<https://www.youtube.com/watch?v=Gw5cGZxAAX8&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=6>

More Compositions- (16:04)

<https://www.youtube.com/watch?v=FiRLi87kfvE&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=7>

Clipping- (7:09)

<https://www.youtube.com/watch?v=pzZGrQG2O7c&index=5&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

Demo Approaches: Moving Star- (8:52)

<https://www.youtube.com/watch?v=uPxHJEqnI1E&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=3>

More Demos- Mostly a review- (4:35)

<https://www.youtube.com/watch?v=G2W0qFTSqbs&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=4>

Tools

Jing- (7:53)

<https://www.youtube.com/watch?v=YvIxOOMMO5A>

Development Environment- (20:04)

Eclipse Goodies- (9:54)

<https://www.youtube.com/watch?v=RX7eWOAgFEQ&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=87>

Eclipse Debugger- (18:25)

<https://www.youtube.com/watch?v=HdLu0kZIRj0&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs&index=88>

Command Line Java Development- (12:15)

<https://www.youtube.com/watch?v=Gmw5MbsBnKo&index=2&list=PLYCnr23oAKDndpgECnJFusR1PDtBfNIPs>

