Programming in Java

Introduction

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About me

- PhD in SP, Beijing Jiaotong University
- Research interest: Computer Vision, Machine Learning
  - Enjoy programming, Algorithm design & analysis
- Industry experiences:
  - Beijing JYD Digital Technology Co., Ltd.
- Office: N515, 9# Building, make appointment first, please

- Questions and feedbacks are highly encouraged

Course Goals

- This course provides you with knowledge and skills to:
  - Create Java™ technology applications that leverage the object-oriented features of the Java language, such as encapsulation, inheritance, and polymorphism
  - Execute a Java technology application from the command-line
  - Use Java technology data types and expressions
  - Use Java technology flow control constructs
  - Use arrays and other data collections
  - Implement error-handling techniques using exception handling

Course Goals(Cont')

- Create an **event-driven** graphical user interface (**GUI**) by using Java technology GUI components: panels, buttons, labels, text fields, and text areas

- Implement **input/output(I/O)** functionality to read from and write to data and text files

- Create **multithreaded** programs

- (Optional)Create a simple Transmission Control Protocol/ Internet Protocol (**TCP/IP**) client that communicates through sockets

Course Overview

- This course describes the following areas:
  - The syntax of the Java programming language
  - Object-oriented concepts as they apply to the Java programming language
  - GUI programming
  - Multithreading
  - Networking(Optional)

Course Map

The Java Programming Language Basics

- Getting Started
- Object-Oriented Programming
- Identifiers, Keywords, and Types
- Expression and Flow Control
- Arrays

More Object-oriented Programming

- Class Design
- Advanced Class Features

Exceptions, Collections and I/O

- Exceptions and Assertions
- Collections and Generics Framework
- I/O Fundamentals

Developing Graphic User Interfaces

- Console I/O and File I/O
- GUI Event Handling
- GUI-based Applications

Advanced Java Programming

- Threads
- Networking(Optional)

Reference Material

- Textbook:
  - The Java Tutorial, http://java.sun.com/docs/books/tutorial/
  - Java语言程序设计与数据结构（基础篇、进阶篇）,Y.Daniel Liang著,机械工业出版社，2018
- Optional
  - JDK 8 help, http://docs.oracle.com/javase/8/, http://docs.oracle.com/javase/8/docs/api/index.html
  - Programming tutorial and code examples, http://www.java2s.com
  - Java JDK 9学习笔记，林信良编著，清华大学出版社，2018
  - Java核心技术，卷I/II，Cay S. Horstmann等，周立新等译，机械工业出版社，2016
  - Effective Java，3rd Edition，机械工业出版社，2018

Course Arrangements

- Schedule:
  - Totally 48 hours, including 16 in lab.
  - Lots of exercise required.
- Final Exam:
  - TBD, tend to be open book...
  - Your attendence and assignment accomplishments will contribute to your final grade

Lectures: Week, Weekday, Classroom

1, W	**2, W**	**3, W**	**4, W**	**5, W**	**6, W**	**7, W**	**18, W**
9, W	**10, W**	**11, W**	**12, W**	**13, W**	**14, W**	**15, W**	**16, W**

Labs: Week, Weekday, 9#N401

1, F	**3, F**	**5, F**	**7, F**	**9, F**	**11, F**	**13, F**	**15, F**

Policies

- No cheating
  - Do not share your solutions; do not copy solutions online. These will lead to a course grade of F for both sides
  - Anti plagiarism software will be applied
- No late submission
  - Late submissions will be rejected
- Submission via course website as required
  - No make-up quizzes/exams

How Prepared Are You?

- Before attending this course, you'd better have:
  - Created and compiled programs with C or C++
  - Created and edited text files using a text editor, ie: Notepad++, Visual Studio Code, gedit…
  - Used a World Wide Web (WWW) browser, such as Microsoft Edge, Mozzila Firefox, Safari or Google Chrome