

AP COMPUTER SCIENCE A JAVA FOCUSED PROGRAMMING

Introduction:

I'm sticking with learning Java and the AP Computer Science A (CSA) curriculum for this semester. Now that I've learned the basics of Java, and have the knowledge to program in it effectively I need to start memorizing the provided classes for the exam, as well as start doing test prep.

I'll be doing self designed course work here, for which I'll be using 3 different books. The main 2 books here are the "Cracking the AP Computer Science A Exam: 2020 Edition" book by the Princeton Review, and the "AP Computer Science A: 8th Edition" book from Barron's Test Prep. From these 2 books I'll be covering different chapters, as well as pulling practice tests and questions from them. Lastly, I'll be using the book "Learning Java: 4th Edition" by Patrick Niemeyer and Daniel Leuck for help with the classes on the exam, and as a way to look into Java programming in the real world.

I have also found practice question sets online that I'll use while I complete the first few chapters in the Princeton Review book. These are from <http://www.mathwithmrwood.com/ap-computer-science/ap-computer-science-problem-sets> . The solutions are provided in this link, and I'll be scoring myself on how many I answer correctly.

In the final few weeks of the course, after exams, I'll be working on practice for the USA Computing Olympiad. These problems are like Bloomsburg problems, but on steroids. As it stands, I have no clue how many I'll be able to get done per week, but the goal is to get at least 2 done. I can keep you updated on this in person though, as we don't get access to the questions prior to beginning training.

Goals:

- Form concrete knowledge in all necessary parts of Java for the AP CSA Exam
- Take at least 1 Practice test per week after covering all overview chapters in Princeton Review book
- Score a 4 or 5 consistently on AP Practice exams
- Improve overall in how my 'clean' my code is, and learn to create effective comments

Assuming a start date of February 17, the AP Exam will fall in Week 12. This is how I'm aligning my outline here:

Week 1:

- Read Chapter 3 "Basic Techniques" in the Princeton Review book
 - Also read Part III in Princeton Review book, to know exam expectations and layout
 - Copy and finish "Review Drill" problems, as well as review "Key Terms"
 - Finish Problem Set 1 Multiple Choice Questions from MathWithMrWood
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- Submit all materials onto GitHub under ICS_2019_2020

Week 2:

- Read Chapter 4 “Flow Control and Constructs” in the Princeton Review book
- Copy and finish “Review Drill” problems, as well as review “Key Terms”
- Finish Problem Set 1 Free Response Questions from MathWithMrWood ***Make sure to comment FRQ Code***
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Week 3:

- Read Chapter 5 “Classes” in the Princeton Review book
- Copy and finish “Review Drill” problems, as well as review “Key Terms”
- Finish Problem Set 2 Multiple Choice Questions from MathWithMrWood
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Week 4:

- Read Chapter 6 “Arrays” in the Princeton Review book
- Copy and finish “Review Drill” problems, as well as review “Key Terms”
- Finish Problem Set 2 Free Response Questions from MathWithMrWood ***Make sure to comment FRQ Code***
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Week 5:

- Read Chapter 7 “Inheritance” in the Princeton Review book
- Copy and finish “Review Drill” problems, as well as review “Key Terms”
- Finish all of Problem Set 3 from MathWithMrWood
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Week 6:

- Read Chapter 8 “Advanced Control Structures” in the Princeton Review book
 - Copy and finish “Review Drill” problems, as well as review “Key Terms”
 - Finish all of Problem Set 4 from MathWithMrWood
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Week 7:

- Take Princeton Review Practice Test 1, score self and submit to GitHub
- Read Chapter 3 “Classes and Objects” in Barrons book for more in depth look at classes
- Copy and finish review problems from chapter, upload to GitHub

Week 8:

- Take Princeton Review Practice Test 2, score self and submit to GitHub
- Read Chapter 4 “Inheritance and Polymorphism” in Barrons book for more in depth look at polymorphism
- Copy and finish review problems from chapter, upload to GitHub

Week 9:

- Take Barrons Practice Test 1, score self and submit to GitHub
- Read Chapter 7 “Arrays and Array Lists” in Barrons book for more in depth look at arrays
- Copy and finish review problems from chapter, upload to GitHub

Week 10:

- Take Barrons Practice Test 2, score self and submit to GitHub
- Read Chapter 8 “Recursion” in Barrons book for more in depth look at recursion and FRQ Recursion
- Copy and finish review problems from chapter, upload to GitHub

Week 11:

- Take Barrons Practice Test 3, score self and submit to GitHub
- Read Chapter 9 “Sorting and Searching” in Barrons book for final look at sorting and searching
- Copy and finish review problems from chapter, upload to GitHub

Week 12: AP EXAM WEEK!!

- Read Princeton Review Part IV “Test-Taking Strategies for the AP Computer Science A Exam”
 - Read Chapter 1 “Strategies for Taking the Exam” in Barrons book
 - Take final practice exam in Barrons, score self, and prepare mentally for test on Friday.
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Week 13: Freedom. USACO time!

- Read Chapter 1 “A Modern Language” in “Learning Java”
- Begin USA Computing Olympiad Practice in USACOGateway. Finish as many problems as possible, upload to Github

Week 14:

- Read Chapter 2 “A First Application” in “Learning Java”
- Continue USACO practice, upload any solutions to GitHub

Week 15:

- Read Chapter 3 “Tools of the Trade” in “Learning Java”
- Continue USACO practice, upload any solutions to GitHub

Week 16:

- Read Chapter 4 “The Java Language” in “Learning Java”
- Continue USACO practice, upload any solutions to GitHub

Week 17:

- Read Chapter 5 “Objects in Java” in “Learning Java”
- Continue USACO practice, upload any solutions to GitHub

Those last few weeks look really repetitive, but I’m fairly sure they’ll be hard enough because of USACO Practice.

Conclusion:

If I counted right, that should be the end of the school year (Assuming we don’t get another week from snow days). Hopefully by the end of this I’ll have finished my goals of getting a 5 on the AP Exam, and getting better at writing concise and clean code.
