

# AP Computer Science A

## Summer Assignment

- Welcome to the AP Computer Science A course! AP CSA introduces students to computer science through programming. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language.
- Your summer assignment consists of two parts. All necessary links are given below and all files are posted on Google Classroom.
- Use your @cmitacademy.org email and join my class using this class code: **yfydcr**
- All work should be completed and submitted to Google Classroom by **Sunday, September 13, 2020 11:59 PM**

### Part I

You will read **Chapter 1** from the book, [Think Java: How to Think Like a Computer Scientist by Allen B. Downey and Chris Mayfield](#) and answer the attached questions.

### Part II

You will read the [AP CSA Course and Exam Description](#) and answer the attached questions.

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**Important notes on written responses:** I expect all written assignments to be in complete sentences, use correct grammar and use correct punctuation. I also expect well designed, clear, concise answers with supporting details.

**Sample prompt:** “Give at least one specific example of an aspect or experience in your personal life that is related to the chapter.”

**Example of a poor response:** I used search engines all the time.

**Example of an AP level response:** The authors center this chapter on how search engines are manipulated to serve the government and political party’s wishes and ideals. They explain how a Google search for “democracy” yields different results in China versus the United States. Obviously both countries have very different connotations of democracy, and they want people to think the way they do. So, the same Google search alters depending on the zone and country we live in. I personally saw this during my trip to India. In the U.S, I had searched up information about Jayalalitha, an Indian central minister. The readings were generally neutral, exposing the good and bad of her life. However, when I opened the same search in India, almost all of the articles listed were highly biased, exposing only the good in her. Thus, country matters, and I learnt that even Google is subject to political strategies.

# AP CSA - Summer Assignment - Part I

After reading **Chapter 1: The Way of the Program** in the online textbook, [Think Java: How to Think Like a Computer Scientist by Allen B. Downey and Chris Mayfield](#), answer the following questions on a Google Docs document. Submit your document to Google Classroom by **Sunday, September 13, 2020 11:59 PM**. (Class Code: **yfydcr**)

1. How does thinking like a computer scientist compare to thinking like a mathematician, an engineer, and a scientist?
2. What is the single most important skill for a computer scientist? Explain.
3. Java is an example of a high-level language. What is the difference between a high-level language and a low-level language?
4. List two advantages of programming in a high-level language. List one disadvantage.
5. What is an interpreter?
6. What is a compiler?
7. What language is used in AP Computer Science A?
8. What is source code?
9. What is debugging?
10. What symbol is required at the end of every statement?
11. What is the purpose of {} curly braces in Java?
12. What is the purpose of a comment in programming?
13. What does the compiler do when it sees //, the comment symbol?
14. What are your goals for this course?
15. Tell me something interesting about yourself.

# AP CSA - Summer Assignment - Part II

After reading the [AP CSA Course and Exam Description](#), answer the following questions on a Google Docs document. Submit your document to Google Classroom by **Sunday, September 13, 2020 11:59 PM**. (Class Code: **yfydcr**)

1. How is the student learning assessed on the AP CSA exam? How many sections are there? Give a brief description of each part and the associated percentage of the overall score that each part represents.
2. Identify AND describe (in your own words) each of the Computational Thinking Practices that we will practice in AP CSA.
3. Identify AND describe (in your own words) the Four Big Ideas of AP CSA.
4. Identify AND describe the task verbs used in the AP CSA Free-Response Questions. Give a brief description of each verb.
5. Consider the following code segment.

```
int a = 5;
int b = 2;
double c = 3.0;
System.out.println(5 + a / b * c - 1);
```

What is printed when the code segment is executed?

- (A) 0.6666666666666667
- (B) 9.0
- (C) 10.0
- (D) 11.5
- (E) 14.0