AP Computer Science Principles Summer Packet

Welcome to AP Computer Science Principles! This course is equivalent to a college-level "Computer Science for non-Computer Science Majors", so no prior computer science knowledge or coding experience is expected. However, the course will move quickly as college classes tend to do. I am excited to work with you this year and to watch you grow as Computer Scientists.

The aim for the course is two-fold: 1) to introduce students to some of the exciting and interesting sub-fields of computer science and 2) to prepare students for the College Board AP CSP assessments. Where these two goals are in conflict, goal 2 will take precedence. To that end, the majority of our work will focus on learning how to write computer code, since it is the most heavily assessed "Big Idea" of the course (see below). However, I hope you take any and every opportunity to explore other areas of computer science. It is a field rich in experiences and careers that can appeal to students with diverse interests and skills.

Please complete the assignments in this summer packet so we can "hit the ground running" when the school year begins.. These assignments will help orient students to the content and objectives of the Computer Science Principles course and give insight into how College Board does its assessments (hint: it's a bit different than other AP courses). The assignments will also help me organize our time together to give students the best opportunity for success on the assessments. *The information in the packet is high-level and not "content-heavy", but please take these assignments seriously.* We have a lot to cover during the school year and therefore will spend a very short amount of time on the summer packet information on the first day of class. Please also remember this is my first impression of your work, so put your best foot forward to start off the year well.

Assignments

1) **Visit the AP Computer Science Principles Website https://apcentral.collegeboard.org/courses/ap-computer-science-principles/course and answer the following:**

- What are the AP computer science courses offered by College Board? What is the difference between these courses?

- What are the 5 big Ideas in this course?

- Describe each of the big ideas in your own words

- In your own words describe the two parts of the AP test for this course

2) Install VS Code and Java

(If you run into trouble I will help on the first day. Please have specific errors/questions)

Setting Up Visual Studio Code and Java for Running Java Programs (Windows & Mac)

This guide will walk you through installing Visual Studio Code (VS Code) and Java so you can write and run Java programs on your Windows or Mac computer.

Software to Install:

- **Visual Studio Code:** A free, open-source code editor from Microsoft.
- **Java Development Kit (JDK):** A software package that provides the tools needed to develop Java applications. There are several options for JDKs, we'll recommend a few.

Installation Steps:

1. Install Visual Studio Code:

- Head over to the official VS Code download page: [download visual studio code ON code.visualstudio.com]
- Download the installer for your operating system (Windows or Mac).
- Run the downloaded installer and follow the on-screen instructions.

2. Install Java Development Kit (JDK):

There are two main approaches for installing the JDK:

- **Option 1: Using the "Java Pack for VS Code" (Recommended for Beginners):**
  This option simplifies the process by installing both the JDK and the necessary VS Code extensions in one go.
  - Open VS Code.
  - Go to the Extensions tab (usually on the left sidebar).
  - Search for "Java Pack".
  - Install the "Java Pack" extension from Microsoft.
  - Follow the on-screen instructions during the installation. This might involve downloading the appropriate JDK for your system.
- **Option 2: Manual Installation (More Control):**
  This option gives you more control over which JDK you install. Here's a breakdown for both Windows and Mac:
  Windows:
  1. Visit the download page for your preferred JDK provider:
     - Oracle JDK: [Java SE Downloads ON Oracle java.com]
     - Amazon Corretto: [Amazon corretto download ON Amazon.com aws.amazon.com]
     - Eclipse Adoptium: [Temurin Downloads | Adoptium]
  2. Download the installer for your Windows system (usually a .msi file).
  3. Run the downloaded installer and follow the on-screen instructions.
     Mac:
  1. Visit the download page for your preferred JDK provider (same options as Windows).
  2. Download the .dmg file for your Mac system.
  3. Open the downloaded .dmg file.
  4. Drag the JDK icon to your Applications folder.

3. Verify Java Installation (Optional):

Open a terminal window (Command Prompt on Windows, Terminal on Mac). Type java -version and press Enter. If Java is installed correctly, you should see the installed Java version information.

4. Setting Up VS Code for Java Development:

Once you have the JDK installed (using either option 1 or 2), VS Code should automatically detect it. However, you can verify and configure some settings:

- Open VS Code.
- Go to the Extensions tab (usually on the left sidebar).
- Search for "Java" extensions. You might see additional extensions recommended for Java development, such as "Spring Boot Extension Pack" or "SonarLint." These are optional and provide extra features.

Running Your First Java Program:

- Open VS Code and create a new file (**File > New File**).
- Save the file with a name ending in .java (e.g., HelloWorld.java). This tells VS Code it's a Java file.
- Type your Java program code within the file. Here's a simple example to print "Hello, World!":

Java

```
public class HelloWorld {

  public static void main(String[] args) {
    System.out.println("Hello, World!");
  }
}
```

- To run the program, you have two options:
  Option 1: Use the built-in terminal:
  1. Open the integrated terminal in VS Code (**Terminal > New Terminal**).
  2. Navigate to the directory where you saved your Java file using the cd command.
  3. Compile and run your program using the following command (replace HelloWorld.java with your filename):
     `javac HelloWorld.java`
     `java HelloWorld`
     Option 2: Use the "Run and Debug" extension (Recommended):
  1. Install the "Run and Debug" extension from VS Code if you haven't already (search for it in the Extensions tab).
  2. Click the green "Run" button (play icon) in the top toolbar of VS Code.
  3. Select "Java: Run (current file)" from the menu.

This will compile and run your Java program, and you should see the output

https://www.youtube.com/watch?v=qTaZO_Ou7Zo (Mac)

https://www.youtube.com/watch?v=BB0gZFpukJU (Windows)