



CCC Prep Program

-Time: Thursday 7:00-8:30pm

- Date: Dec. 15th to Feb. 2, 8 lessons in total

Description: In this 8-lesson program, students will gain the technical, design, and thinking skills to approach the CCC challenges through a variety of skills and challenges.

<i>Lesson</i>	<i>Topic</i>	<i>Sub-topic</i>	<i>Lesson Objective</i>
1	<i>CCC Overview</i>	<ul style="list-style-type: none">• The CCC expectations• How to master T.D.T (Technical, design, thinking) skills• Overview of coding knowledge of chosen language (Java, Python)	In the first session, students will be introduced to a specialised technique of T.D.T which upon the successful mastery of the skills of technical ability, thinking and design skills will ensure the students succeed in the CCC.
2	<i>Data Structures & Accessing Information</i>	<ul style="list-style-type: none">• How to manage data in the CCC questions• How to access data in a timely manner• Looping and Case Switches• How to effectively organise and store information	Students will learn how to use data structures to their advantage to manage and manipulate data in their CCC questions. A lot of the questions consist of allocating and organising data so that it creates the correct output and this lesson will focus on what is the best approach.
3	<i>ArrayList/List</i>	<ul style="list-style-type: none">• How to use ArrayList/List to their maximum potential• Master all the required methods to access information from an ArrayList/Array	ArrayList/Lists is one of the most important skills to master when it comes to managing data and students will encounter their usages frequently in their coding challenges. In this session, students will be taught all the essential methods of their chosen ArrayList/List and some handy tricks and tips that will help them manipulate data more effectively.



4	<i>HashMaps/Dicti onaries</i>	<ul style="list-style-type: none"> • How to use HashMaps/Dictionaryes to their maximum potential • Master all the required methods to access information from an HashMap/Dictionary 	HashMaps/Dictionaries are also a very useful way to manipulate data, especially if students are presented with data that comes in pairs. Students will be taught all the methods required to use a HashMap/Dictionary and how to use them to their best ability.
5	<i>BufferedReader /Console Input</i>	<ul style="list-style-type: none"> • Accessing input as given by the CCC prompt • Understand how console reading works 	Students will learn how to extract that information successfully and understand how to store the information from the sample input using the BufferedReader and Console Input.
6	<i>Advanced Data Manipulation</i>	<ul style="list-style-type: none"> • Conversion Type • 3D Arrays • How do operations work on other variable types vs integers. 	Students will learn advanced data manipulation techniques through the usage of conversion types in order to convert between any two variable types as well as what are the advantages and disadvantages of doing so. They will also learn advanced data manipulation techniques such as 3D arrays and arrays of other types that aren't integers/strings.
7	<i>Challenge Questions and Mastery</i>	<ul style="list-style-type: none"> • Practise sessions • Solving past CCC papers independently. <p>Finalising students skills and ensuring they are ready for the CCC questions</p>	In these classes, students will independently work on as many CCC prep questions as possible using all the previously taught skills and approaches. We will also review their CCC challenges. solutions and students will be pushed to their maximum potential and ability through reviewing their solutions and improving their code if needed.
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