Introduction to Programming and Problem Solving in C++

Good morning Bosses,

We would like to invite your students to the 2022 Computing.SG December Course on Programming and Problem Solving in C++.

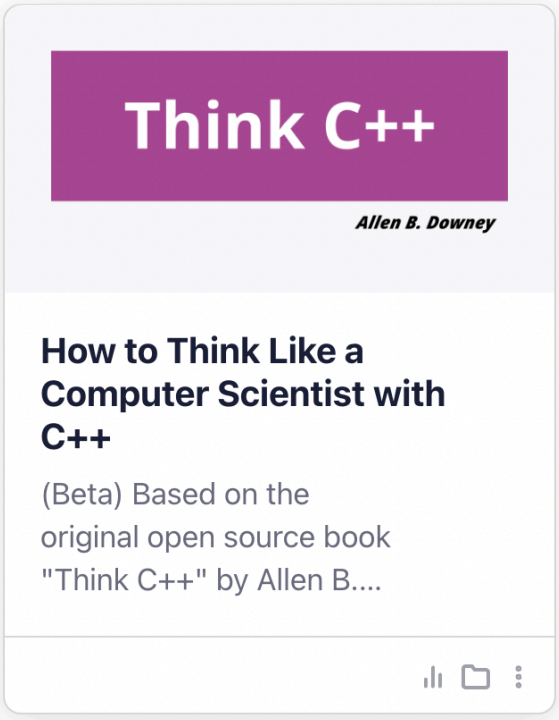
No prior programming experience is assumed, though knowledge in a high level programming language eg Python can be advantageous.

Eligibility

Each qualifying participant must have attained a conduct grade of at least Very Good, or submit a personal statement why his/her conduct grade is not at least Very Good, and attend an interview to assess suitability.

Course Details

Scope



Reference Texts
https://runestone.academy/ns/books/published/thinkcpp/index.html
https://runestone.academy/ns/books/published/cppds/index.html

Platform: https://qa-mktg.codingrooms.com/compiler/c++/

Dates: 3, 5, 7, 10, 12, 14, 17, 19, 21, 28 Dec (i.e. every Mon, Wed, Sat except 24 Dec Christmas Eve and 26 Dec Christmas Day public holiday off-in-lieu)
Time: 1000 - 1600 hours
Venue: Hybrid mode i.e. in-person at NIE / (we are also exploring some more accessible venues) and/or online via Google Meet or Zoom.

Please note that while light snacks may be provided for on-site participants, students are expected to obtain their own lunch.

Payment

Each participant who achieves at least 90% proof of code (POC) will be paid up to $50 equivalent in crypto currencies, and learn about blockchain technologies in the process. Participants with 100% proof of code will earn the maximum amount of $50 in kind.

To encourage female participation, the amount will be doubled to up to $100 in kind.

Disclaimer: Please note that this is not and there will not be financial advice to dabble in highly volatile crypto currencies trading, but to understand the concepts and applications of blockchain and web 3 technologies in a practical way.

Welcome to **Code to Learn**. :)

Registration

Sign up at https://for.edu.sg/cpp22register by 2359 Wed 30 Nov 2022. Registration may close early when slots run out.

To encourage participation from more diverse and under-represented groups, priority will be given to students whose schools do not have a significant presence in competitive programming competitions. Some schools already have a strong culture and teacher/alumni support in competitive programming and should continue to tap on existing resources.

Confirmation of acceptance will be emailed to successful participants on a rolling basis until Thu 1 Dec 2022 or when all slots are occupied.

FAQ

Q. What is proof of code (POC)?
A. We define proof of code not as mere presence (in-person or online) in attendance, but as actively participating in interaction and making genuine attempts to complete all assigned tasks. Participants are expected to maintain a public digital portfolio of their work on GitHub.

Q. Will certificates be issued?
A. Yes we will issue e-certificates in the form of NFTs to all participants who successfully complete the programme.

Q. Will there be consequences for dropping out?
A. As time, resources and manpower have been invested to benefit students' learning, we strongly encourage students not to miss too many sessions or drop out. Those who do so without valid reasons may be given less priority to subsequent learning opportunities. We do understand that committing almost one entire month in the school holidays can be difficult for students who may have already made family travel plans, so they are also provided the flexibility to catch up on the recordings and complete the assignments at their own time. Please note that there will not be additional make-up sessions beyond the official ones.

Q. Can I decide to attend on-site or online?
A. Yes you can. We are planning for at least the last session on 28 Dec 2022 to be an in-person celebratory closure session to bring everyone who can make it to a mystery venue, so we do hope those who can attend on-site can attend in-person. :)

Q. I am concerned that I may miss some sessions and be unable to catch up.
A. We understand that things happen. A lesson learned is a lesson earned. :)

Q. Do I need to bring my own laptop for on-site sessions?
A. Definitely. It is a BYOD (Bring Your Own Device) programme. :)

Q. Do I need to download and install any software for the programme?
A. Technically you do not need to download and install any software, as this is an introductory course and the focus is to build familiarity and fluency with the C++ programming language and simple algorithmic problem solving, and these objectives can be achieved using cloud-based IDEs such as those used in the course as well as https://replit.com and https://codecollab.io. For students who are using their personal laptops on Windows or Mac OS or Linux operating systems, if you wish, you can also try out https://code.visualstudio.com (this may not work with school purchased personal digital learning devices which have security restrictions imposed).

Q. What competitive programming contests are available?
A. Apart from the National Olympiad in Informatics (NOI) which is an annual national competitive programming contest organised by NUS School of Computing, Google also organises an international year-long Kick Start contest for students. From 2023, NOI will be a paid event with

its usual quota (typically 5 students per school), while Kick Start continues to be a free programme with no limit to the number of participants per school. There is of course Google Code Jam which is targeted mainly at professionals but is also open to students.

Q. The problems are too tough. Are there easier tasks for me to practise my fundamental problem solving skills?
A. You can try practising some problems from https://projecteuler.net/archives or also some relevant problems from https://www.hackerrank.com/domains/cpp

Q. Why are you doing this?
A. Because we believe every student who wishes to learn about problem solving and programming with data structures and algorithms should be encouraged and supported.

This year. NUS School of Computing has decided to remove the elementary track for their annual competitive programming training, citing changes stipulated by MOE. In the best interest of students who wish to learn, we would like to fill this void.

Email contact for queries: ada@computing.sg

About

This programme is brought to you by Computing.SG, a non-profit group of Computing enthusiasts with the mission to promote K-12 Computing education in Singapore to ALL students, not only a minority select group.

This document is also accessible and updated at https://for.edu.sg/cpp22invite