

TMS Coding Club

10/21/2021

Vision

- ▶ Inspire interests in programming and help students get prepared to change the world by learning a lifetime skill, gaining confidence and opportunity

Goal

- ▶ Inspire Interest
 - ▶ It is creation, it is fun, it is mental sport
- ▶ Learn knowledge
 - ▶ CS concepts and programming languages
- ▶ Develop capabilities
 - ▶ Problem solving skills and computational thinking
- ▶ Build character traits
 - ▶ Persistence, collaboration
- ▶ Challenge ourselves
 - ▶ Participate programming competition, build real applications

Level & Focus

- ▶ Group A - Beginner
 - ▶ With no or little coding experience
- ▶ Focus
 - ▶ Basic CS and coding concepts
 - ▶ Python learning
 - ▶ Simple projects
- ▶ Group B - Intermediate (Focus on Programming Competition)
 - ▶ Basic knowledge in programming language (Python, Java, or C++, C++ preferred)
 - ▶ 6 months+ coding experience
 - ▶ Interested in participating programming competitions
- ▶ Focus
 - ▶ Proficiency in language and basic libraries
 - ▶ Data structures and algorithms
 - ▶ Problem analysis and solution efficiency
 - ▶ Debugging/troubleshooting skills
 - ▶ Practice and participate programming competitions
- ▶ Group C - Intermediate (Focus on Building Applications)
 - ▶ Basic knowledge in programming language
 - ▶ 6 months+ coding experience
 - ▶ Interested in building real applications
- ▶ Focus
 - ▶ Proficiency in language
 - ▶ Basic data structures
 - ▶ Extended libraries
 - ▶ Debugging/trouble shooting skills
 - ▶ Relatively complicated projects and build real applications
 - ▶ Teamwork

Activities

- ▶ Learn by doing, practice and working together
- ▶ Weekly meeting/gathering (virtually for now) based on group, for coaching, sharing, assignment report back, etc.
- ▶ Group A - Beginner
 - ▶ Teaching by coach
 - ▶ Work on simple projects
 - ▶ Move to Group B or C when ready
- ▶ Curriculum
 - ▶ Know coding environment and tools
 - ▶ Learn Python basics - variables, basic data structure, control and condition statement, functions, classes
 - ▶ <https://www.learnpython.org/>
 - ▶ [Python Crash Course](#)
 - ▶ Simple projects
- ▶ Group B - Intermediate (Focus on Programming Competition)
 - ▶ Teaching/sharing by coach (also guest speaker)
 - ▶ Students sharing and discussion
 - ▶ Practice solving competition problems
 - ▶ Participate programming competition both individually and as a team
 - ▶ ACSL (American Computer Science League)
 - ▶ USACO (USA Computing Olympiad)
- ▶ Group C - Intermediate (Focus on Building Applications)
 - ▶ Teaching/sharing by coach (also guest speaker)
 - ▶ Students sharing and discussion
 - ▶ Work on various relatively complicated projects (normally take weeks), like gaming, animations, websites, data analysis, etc. Most ideas could be coming from students.
 - ▶ Participate in App challenges

Others

- ▶ Coach/volunteer recruiting
 - ▶ Both parent coaches and student coaches(high school preferred) are welcome
 - ▶ 3 years+ coding experience (coaching experience is a plus)
 - ▶ For Group B, with programming competition background, USACO Silver or plus
 - ▶ For Group C, with experience of application creation
 - ▶ Biweekly staff/coach sync-up
- ▶ Students to use their own computers