**Feasibility Analysis of Creating an AMS Sponsored Club for**

**Technical Interview Practice for Computer Science Students**

For

Department of Computer Science

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By

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**Table of Contents**

***0. Abstract* 3**

***I. Introduction*   
 1. Background information about UBC’s Computer Science courses 4  
 2. Information about clubs that focus on Computer Science topics 4  
 3. Scope and audience 4  
 4. Description of data sources and methods 5**

***II. Data Section* 5**

**1. Overview of resources currently available for students 5**

* **Project rooms and labs 5**
* **Current clubs that teach programming concepts 5**

**2. Discussion of the data collected 6**

**3. Proposed solution 8**

* **Structure of the club activities 8**
* **Information about similar clubs in other universities 8**

***III. Conclusion* 9**

**Abstract**

The University of British Columbia’s Faculty of Science offers a good degree in Computer Science. However, this can be complemented by some AMS sponsored clubs that further educate the students. There are several topics that do not get covered in great detail in the lectures, and one of them is technical interview practice. There are problems such Smallest Integer Divisible by K, Next Greater Node in Linked List, and many others that do not get covered in the curriculum of the classes offered by UBC. Hence, this paper tries to determine if it is feasible to create an AMS sponsored club that deals with this kind of technical problems and teaches students to be well prepared in all interview related circumstances. Some of the questions asked in the survey are about the frequency of practising interview related questions, hours devoted for practice, and the score received in coding challenges.

* 1. **Introduction**
     1. **Background information about UBC’s Computer Science courses**

There are a multitude of courses offered under the Department of Computer Science at The University of British Columbia. In the first two years one can learn about physical and mathematical models of computation in CPSC 121, computation, programs, and programming in CPSC 110, basic data structures and algorithms in CPSC 221, and intro to computer systems in CPSC 213. In third and fourth years one has more options from which to choose, but bottom line is that one has to do intermediate algorithms and data structures in CPSC 320 in order to graduate. The courses that are the most relevant for the technical part of the interview are CPSC 221 and 320.

* + 1. **Information about clubs that focus on Computer Science topics**

There are a few clubs that already focus on Computer Science topics. For example, there is the Competitive Programming Club that focuses on ACM (Association of Computing Machinery) ICPC (International Collegiate Programming Contest) competitions. The issue with this club is that it focuses on advanced programming skills and not everybody is able to do this kind of competitive problems. Another club is Launchpad, which helps students build meaningful group projects for the duration of one semester. This club certainly helps, but the technical part of the interview has many questions that differ from the day to day tasks that one faces at this club.

* + 1. **Scope and audience**

My intention is to bring to campus a club that will serve the students who specifically want to pass the technical part of the job interview. This is not to say that it provides no other benefits, because it certainly helps one to become a better programmer in general. Moreover, one becomes better at overcoming the daily challenges that a coder faces. This club will be structured in such a way that it will accept coders from second year to fourth year. First year Computer Science students lack the background knowledge to be able to participate in the discussions and problem-solving activities, and hence the club won’t be able to support them until they advance to second year.

* + 1. **Description of data sources and methods**

In order to determine the feasibility of such a club, I created a list of questions that was directed to the Computer Science students within UBC.

1. How often do you practice questions on LeetCode, Project Euler, HackerRank or other similar websites?
2. How often do you do time complexity and space complexity analysis of your solution?
3. Have you taken Basic Algorithms and Data Structures (CPSC 221)?
4. What is the average score you achieve in online coding challenges for companies?
5. How many hours would you devote each week for interview practice?
   1. ***Data Section***
      1. **Overview of resources currently available for students**
         * **Project rooms and labs**

There are plenty of labs and project rooms available for undergraduate students. If my approximation is not wrong, there are probably 30 project rooms and about 10 labs. Some of the current clubs, such as the Competitive Programming Club which uses the lab 005, use the undergraduate labs, outside of the class hours. Therefore it may be possible to get the space provided by a lab and use the computers over there to setup a new club.

* + - * **Current clubs that teach programming concepts**

As mentioned earlier, there are a few clubs that cover Computer Science topics and those are Launchpad, Code the Change, Competitive Programming Club, and others. Code the Change offers students hands on experience with projects coming from the real world. While this is a great idea, it won’t be extremely helpful in a job interview. However, the reverse is true, when practising for a job interview, one becomes a better programmer overall.

* + 1. **Discussion of the data collected**

I gave the survey to 50 students from the Computer Science major, and the results seem to indicate that such a new club is beneficial for most students. From the first question on the survey, it seems that many students do not get enough practice with programming questions.

More than half of the students claim that they never practice (34 students). There are also students who practice everyday or most the week, and these can be the students that will lead the club’s activities.

Another interesting statistic is the average score in coding challenges that students from UBC achieve. So far it seems that most of the students score between 50% and 70%, which is by all means a good score, but most companies reject applicants that don’t complete the coding challenge (ie: one must get 100% in order to complete a challenge).

Another statistic that points toward the same conclusion is the number of hours that people would devote for practising such questions. It seems that the vast majority would be able to spend between 1 to 2 hours working on such questions on a weekly basis.

* + 1. **Proposed solution**
       - **Structure of the club activities**

There are many activities that I thought about. If everybody just comes and practices individually, they won’t get as much benefit out of the club. The idea is to practice in groups of maximum 4 people. Every group of 4 people would solve the same problem, and they will time themselves 30 minutes for each easy problem, 45 minutes for a medium problem, and 1 hour for a hard problem. After the time is up, they will discuss the solutions for another 15 minutes. The recommended number of problems per session is 2, but students can solve more or less, depending on their availability.

* + - * **Information about similar clubs in other universities**

There is a Technical Interview Practice Club at The University of Victoria, BC, which offers help for students that struggle with the technical interview. The format of their practices is that they meet once a week, and they all solve the same question for 30-45 minutes and then they discuss solutions for 20 minutes. They usually approach 2 questions per session, and for the solution discussion they ask for volunteers from the crowd to explain their solution. Every solution is analyzed in terms of space and time complexity.

* 1. ***Conclusion***

While UBC ranks high in the top universities, it certainly lacks a technical interview club. The addition of such a club would increase the preparedness of the students that wish to land a job. If the students score higher in coding challenges, that means they will get better paid jobs. While students get the jobs they dream of, the university will be ranked higher. Hence it is in the interest of both the students and the Department of Computer Science to create such a club.