Report of Vancouver Summer Program (VSP)

The Vancouver Summer Program (VSP) is a four-week academic program offered by various Faculties at the University of British Columbia, Canada for students from cooperating universities.

1. Purpose

To learn building Web application and have an international experience with various students.

I had no group development experience until then. I thought that developing overseas while learning about web development would be a valuable experience. And I didn’t have many opportunities to speak English in Japan, so I thought it would help me study English.
2. Time schedule

The daily schedule is as follows:

<table>
<thead>
<tr>
<th>Time</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM~12:00 PM</td>
<td>ClassA: Algorithms and the World Wide Web</td>
</tr>
<tr>
<td>12:00 PM~1:30 PM</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:30 PM~4:30 PM</td>
<td>ClassB: Building Modern Web Applications</td>
</tr>
<tr>
<td>4:30PM~</td>
<td>Optional Event</td>
</tr>
</tbody>
</table>

There was a lot of optional events every day (eg Night Market, Museum, Hike)
I basically did group activities and homework after school, so I didn't participate much in optional event.

The calendar for the month is as follows:

![Calendar Image]

The class period was written as 7/13~8/13, but the actual class period was 7/15~8/8.
Most of the participants went on a trip at weekend and the last five consecutive holidays.

3. Overview of VSP

Students choose between 69 packages. Each package has two classes. Each class is approximately 39 hours of class time. Classes are interactive and include group work and discussions. Evaluation include assignments, group projects, papers, exams, and participation marks.
Schedules and lesson contents vary greatly depending on the package. (I heard that engineering packages (ECE) are usually busy.)
My package is principles of the modern internet (ECE).
4. Activity

We always acted by package, and my package was the most popular in the ECE. My package had 90 students. Other packages had about 60 students. The syllabus was released just before the start of the program, so we could hardly prepare for it.

Class A: Algorithms and the World Wide Web

That class didn’t completely replace a regular course in algorithms that is part of most Computer Science & Engineering programs.

1. Computational Complexity (6 hours)
2. Divide and Conquer (3 hours)
3. Dynamic Programming (3 hours)
4. Greedy Algorithms (3 hours)
5. Graph Algorithms (9 hours)
6. Problem of P vs. NP (3 hours)
7. Distributed System (6 hours)
8. Bitcoin and Blockchains (3 hours)
9. Exam (2 hours)

I have already learned Algorithm but there are some points that I thought were different from Japanese classes.

First, there was a great emphasis on Computational Complexity and Proofs of Algorithms. In all contents, these were strongly conscious.

Next, there was much developmental content such as Divide and Conquer, DP, Distributed System. And there were many advanced assignments. On the other hand, there was no basic sort such as Bubble sort or basic data structure such as Stack, Queue.

Finally, the amount of assignments was quite high. There were 6 programming assignments and 4 written assignments.
ClassB: Building Modern Web Applications

Students were divided into the groups of three and built web application of the photo gallery together.

1. HTTP, HTML, CSS (6 hours) 
2. JavaScript Basics, DOM and Events (9 hours) 
3. Callback and Closure (3 hours)
4. ES6 (3 hours) 
5. AJAX and REST API (3 hours) 
6. NodeJS (3 hours) 
7. Promise, Session, Cookie, Revision (9 hours)

Over the course of the whole project (over the four assignments), we build a photo gallery which download a list of images from a server and display them in a dynamically resizing grid. We can click on any image to enter a presentation mode, and view other images using "previous" and "next" buttons. We can also eventually implement an auto slideshow mode, where images will automatically change after a certain period of time.

I thought HTML and CSS would take a little more time to study, but not much. This was also more advanced than I imagined. And there was plenty of time for discussion during class.

We used the time after school to advance the project with my team member. I discussed with group members a lot.
Optional tours

There were optional tours (Victoria, Whistler, Tofino, Rockies,) at the weekend. Students can apply to school or ABC in advance.
1.Victoria (1Day)
2.Whistler (1Day)
3.Tofino (3Day)
4.Rockies (3 or 4Day)

I joined 3 tours (Victoria, Tofino, Rockies). These are really amazing. I strongly recommend visiting these places.
5. Cost

1. VSP Fee: about 426000YEN
2. Optional Tour Fee: 200000YEN (Victoria, Tofino, Rockies)

6. Outcome and Hereafter

1. Discussion in English
There were many opportunities for the discussions and I proposed many opinions there and I heard other member’s opinions. The ability to discuss and speak in English has grown.

2. Group work experience, Ability to help each other
I learned the procedures and methods for developing apps in groups. I was most experienced in the group, so I often led the group and was able to improve my leadership. And The lesson and assignments were difficult, so I helped a lot with my friends.

3. Think wide
These experiences led to broadening my horizons. I want to make use of this experience to take international and multifaceted actions and give various options in future discussions.

4. Web development and Advanced algorithm knowledge
I developed my photo gallery and my development skills grew. I was able to earn advanced algorithm knowledge by learning contents more advanced than I imagined such as Dynamic Programing, Divide and Conquer.

7. Impression

- Overseas classes were interesting because there were many things that I thought were different from Japan.
- I was able to get ability to take action and international perspective through VSP.
- I think it’s difficult to get that for us unless we go to study abroad. I think it was a really valuable experience.
- I’m not so good at English, but It was really good to try VSP. If you are not good at English, but you are motivated, I encourage you to join VSP.
The campus was very clean and spacious with many student residence. Thank you for this opportunity.