

# PROJ 302

## UNDERGRADUATE SUMMER INTERNSHIP

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# Abstract

Arabam.com is one of the leader company on Turkey's automotive online market. This internship report includes my two months experience in [arabam.com](http://arabam.com). With this internship I learned writing on C# by using .Net framework, based on MVC. Also I learned how to write clean code with the design pattern seperations of concerns. This internship also contriuted to learn how to edit front-end on html and javascript. Also make me practice on SQL and Entity Framework.

The first chapter of this report is about the background information of the company including history of thesr parent company, which has many website companies. I will continue with giving more information about the main technology they used in their websites.

In the second part I give detailed information about my departmant including the job of other .Net developers in my department.

In the third part I give detailed information about my project which is developing a Car Rental Website with both back-end and front-end using SQL, C# and Javascript.

The fourth part explains my internship experience as whole compared with my SU experience along with my job on a typical day at the company. The internship, although short, was useful in gaining the logic of design patterns and practicing on different programing languages as well as SQL. Also practice on finding and fixing bugs, which was a fun and important practice.

In the last part I summed up my internship experience and presented some recommandations for future Proj302 students to look up to.

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# Introduction

My project was to build a ASP.Net website from scratch based on separation of concerns.

Separation of concerns is an important design for big projects, where more than one developer works on the same project since working on one part of project won't break the other parts.

Also even if there are one developer working on the project SOC is still an important design pattern since you can update the parts with the new technology for example if a faster database technology is found you can replace your database without touching other parts of code.

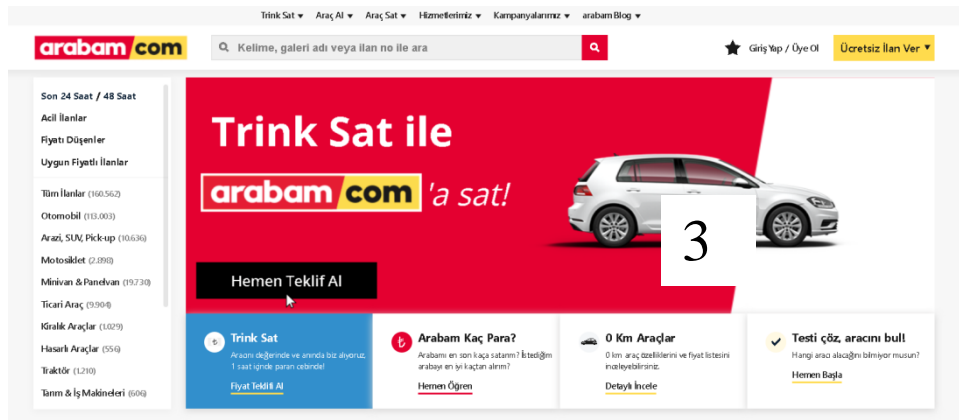
In my project there were five separated parts. Two of them are .Net core projects based on MVC ASP.net, one for admin panel and one for users. Three of them are .Net standard libraries;

- Domain: Includes the domains of the project.
- Repository: Includes the queries to add or update a data from database for necessary domains.
- Services: The services that we need for a website as well as the data transfer objects(DTO) and converters from domain to Data Transfer Object.

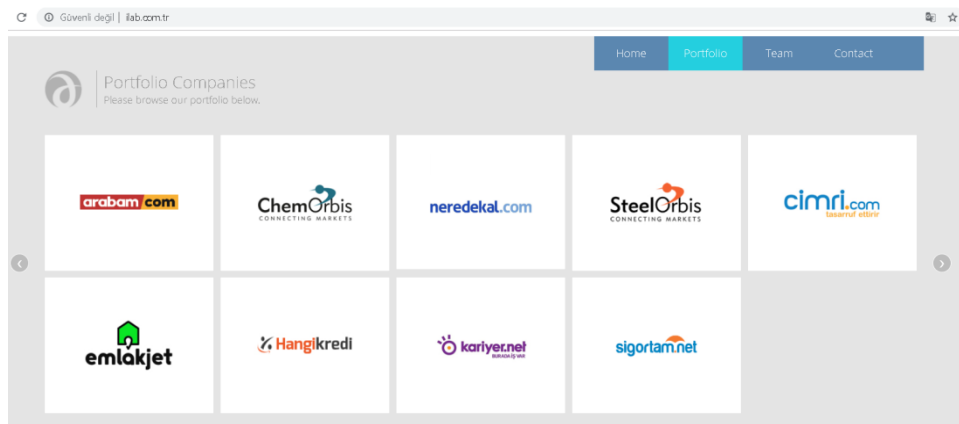
Also with the help of my project I learned a lot about the work flow inside an automotive online market.

# Company Background

Arabam.com website is first built on 2000 and then on 2016 this website acquired by iLabVentures Holding, where we know this holding with other websites emlakjet, kariyer.net, cimri.com, sigortam.net, ChemOrbis, neredekal.com, hangikredi and SteelOrbis websites. With the mission of perfecting its entire system to make buying and selling vehicles form the internet much more reliable, much easier and morje comfortable, arabam.com team aims to improve the experience of its users with new functions every month.



On the other hand iLab Venture is a venture capital company establish on 2000 within Access Turkey Capital Group to invest in companies and projects in sectors with high growth potential, focusing on internet and technology. ILab Venture now has a strong position on the automotive vertical online market with arabam.com.



# **Project Background**

## **Department Info:**

There are 5 different departments in Arabam.com one for the services that they gave like “Trink Sat”, where you can sell your car instantly. There are testers, which test the new updates and looking for bugs on the website. There are front-end developers and back-end developers, which is also my department. Lastly, there is a data scientist which analyze the data to understand the aim of the user instantly.

## **Internship Project**

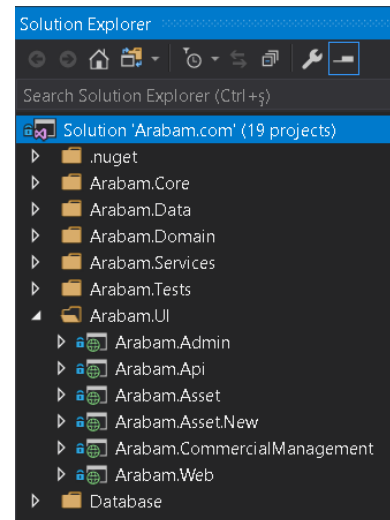
My project objective is to create a Car Rental website, which you can book a car by selecting the location and the dates that you want to rent the car as well as an admin panel that you can add Location, Location Point and Car.

I assigned to done both back-end and front-end of the project since there are only 2 front-end developer but I had no exprience on both ASP.Net, html and javascript. So i need to do a lot of research on theese topics.

In order to learn ASP.Net and the design pattern that they used I started to practice on the Arabam.com main code, which is written respect to design pattern seperation of concerns. I tried to understand the code that they wrote for Arabam.com that has 127.210 lines of codes according to code-metric. In order to practice the code I need to install the external tools that they use for the project; NPM, node.js and gulp. I had many issues to download npm and gulp since latest versions are not compatible with windows 7. After handling the version issues between npm and gulp I started to work on the code. Since I didn't have to use theese

softwares on my program, that are softwares about javascript and javascript was not my main objective on this project.

I used c# .Net Core, javascript and Html to complete my project.



## Seperation of Concerns(Soc)

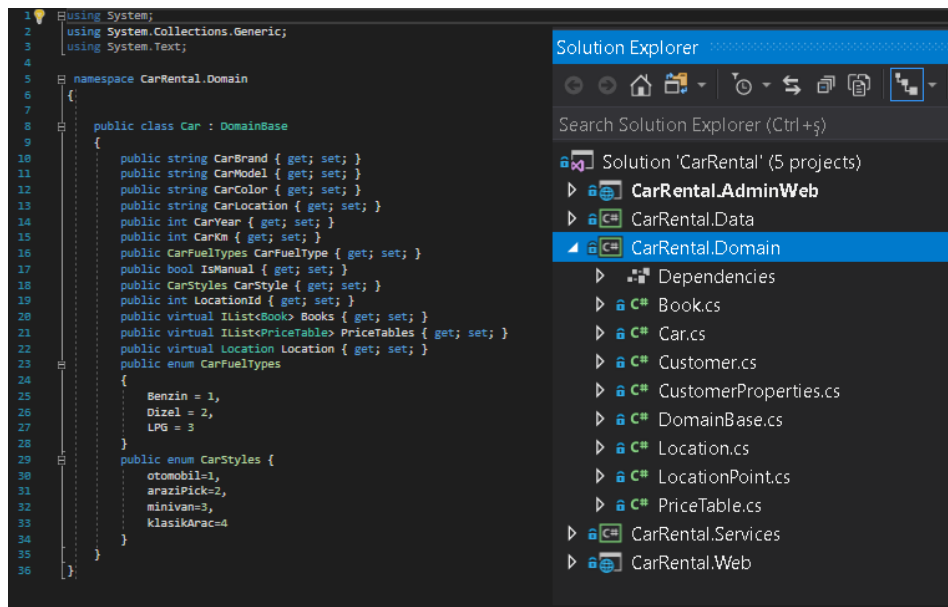
The design principle to separate a computer program into different sections called separation of concerns, SoC, in computer science. Each section addresses separate concern. The term of concern in computer science, is a set of information, which affects the code of a computer program.

# Project Details

- CarRental.Domain

In Domain part of my project I have the domain classes, which is necessary for my website.

These domains are Car, Book, PriceTable, Location, Customer and Customer Properties



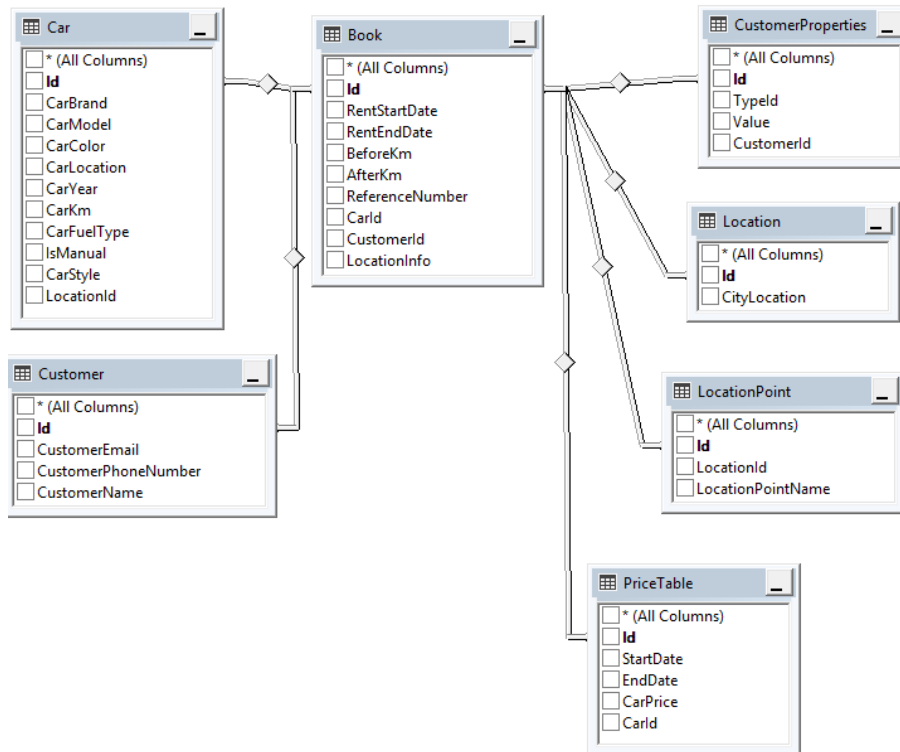
I created a price table domain since I can have different prices based on dates. This table includes date information and price in between these dates.

The customer properties table is for the properties of customers. It contains a key and a value with an enum to add new properties easily. The only thing you need to do is add the value to the enum when you need to add new property. With this enum, changes on customer properties became much more easier.

```
public enum CustomerPropertyType
{
    CustomerAge =1,
    CustomerLicenseAge=2
}
```

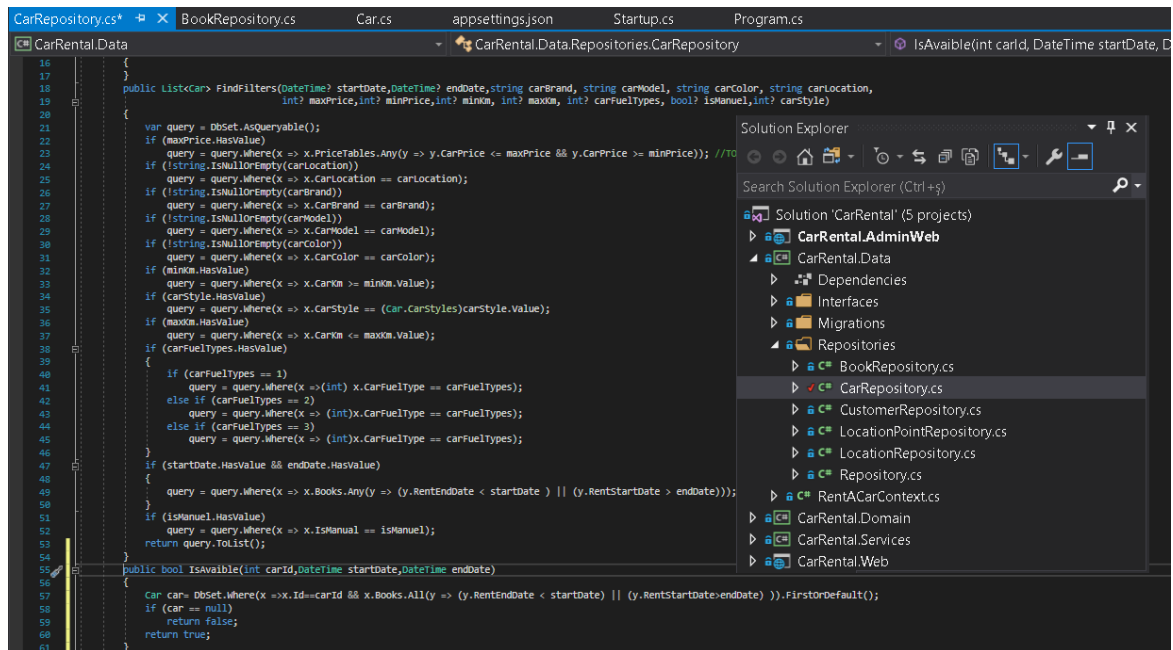


- CarRental.Data



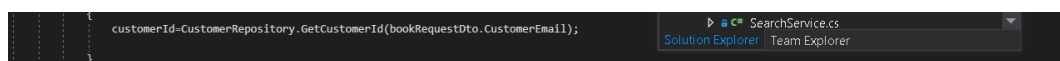
The data part is to connect sql to the rest of the program by using linq queries with entity framework. This part must be seperated so when you change your database you don't need to change the rest of the program. The queries were easy to write since I had the course CS 306.

## Database Systems.

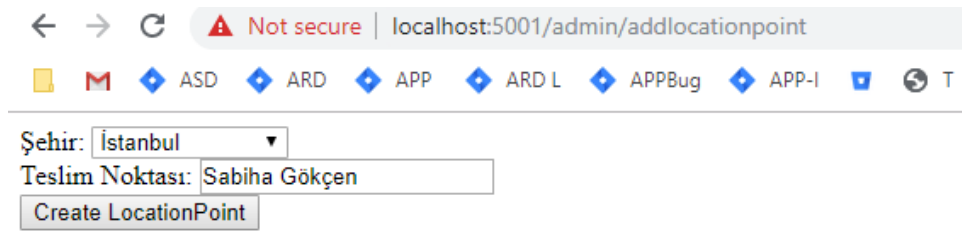


- CarRental.Services

In this part there are the some services that is necessary for Car Rental website. This part includes *search services*, which search the database with the selected filters, *book services* that checks the car is available or not and if available it creates the book and add it on book database. Lastly it has Data Transfer Objects and appropriate converters. Data Transfer Objects are important for model-view pattern. So you can only transfer the properties that you need for that view. To send the info that controller want from the Services part I use class called operation result, which includes a message, string, and a database object, if it is book services it can return the message succesfully booked or the book is not available, if it is booked successfully it also adds the book information object to the operation result object, otherwise it is null.

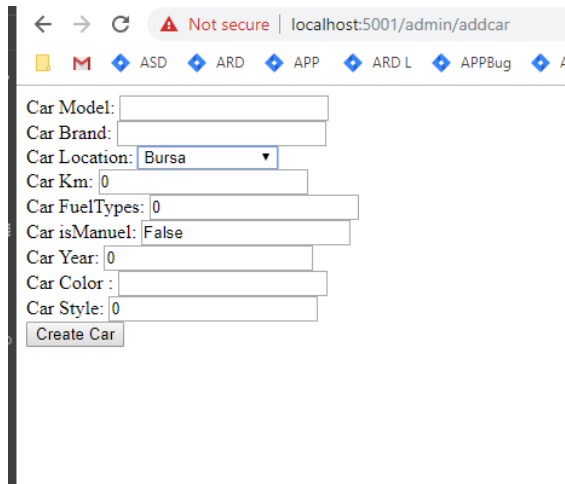


- Admin Panel



A screenshot of a web browser showing the 'addlocationpoint' page. The address bar indicates the URL is 'localhost:5001/admin/addlocationpoint' and the connection is 'Not secure'. The browser's developer tools are open, showing a list of network requests including ASD, ARD, APP, ARD L, APPBug, and APP-I. The form contains a dropdown menu for 'Şehir:' with 'İstanbul' selected, a text input for 'Teslim Noktası:' with 'Sabiha Gökçen' entered, and a 'Create LocationPoint' button.

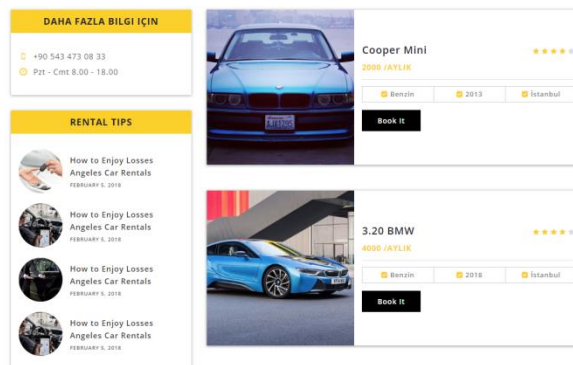
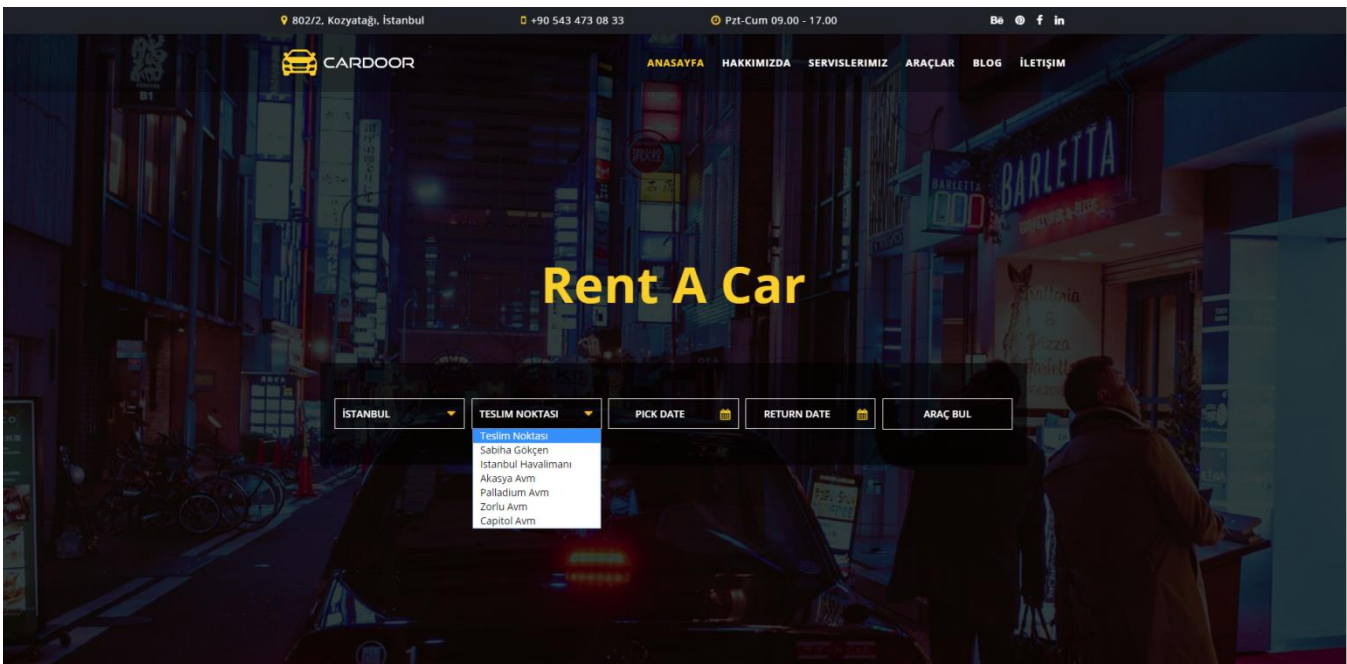
Admin panel is need to add new cars, locations and location points to the database. It is a seperated project from the original website since it is more safe. It has an authentication token system to recognize the admin and let it to make the changes in database.



A screenshot of a web browser showing the 'addcar' page. The address bar indicates the URL is 'localhost:5001/admin/addcar' and the connection is 'Not secure'. The browser's developer tools are open, showing a list of network requests including ASD, ARD, APP, ARD L, APPBug, and APP-I. The form contains several input fields: 'Car Model:', 'Car Brand:', 'Car Location:' (a dropdown menu with 'Bursa' selected), 'Car Km:' (0), 'Car FuelTypes:' (0), 'Car isManuel:' (False), 'Car Year:' (0), 'Car Color:', and 'Car Style:' (0). There is a 'Create Car' button at the bottom.

- CarRental.Web

CarRental.Web is a .Net Core project based on MVC that includes the views and necessary controllers to the views. You can find cars by selecting the locations and the dates that you want to book the car. It is a challenging part for me since my project manager want me to do everything on front-end by myself. So first i started to work on CSS and Bootstrap but since it was too challenging, I decided to get a template and edit on it. Javascript is still a challenging part for me since i never used it before. I just learned to write some easy javascript functions so that it can send the data to the controller.



## • A Day At Arabam.com

The working hours are between 9am and 6pm. As soon as I turned on my laptop I check the jira software where .Net developers get their tasks for the day. If there are any task that is not assigned to a developer. I assign myself to the task and try to complete the task. It can be a bug fix or a new specification to the website Arabam.com. I fixed five bugs in total and find one bug by myself even its not my department job. Also add two new specification to website. While fixing the bugs i work on the test version of arabam.com which is v2.arabam.com. After fixing the bug or adding the new specification I upload it to the test branch of the repository by using Sourcetree. It get tested by the testers and goes live if it pasts test.

After done the issues on jira I continue to my Car Rental website. Most of my day I was researching since I couldn't get enough help from my Supervisor, I had to find the solution to the most of the problems in my project by myself. The most annoying problem was the version problems between node.js npm and gulp, which was hard to solve with windows 7. At the end of the day I was editing the html part of my site, which was the easiest part to done.

## Conclusion

To sum up this internship contributed a lot on my coding skills since I learned two new programming languages; C# and Javascript. Learning C# was easier since it is an object-oriented programming language. I struggled a lot of errors in my projects back-end code but front-end was the real challenging part for me since I have no interest neither experience on html and javascript.

The main object is to learn the design pattern since clean code is too important for the company. Since they have five .Net developers working on the same code, it is important to have a clean code, which is easier to read, edit and update. In my project every part is separated so it is easy to edit and read the code. Also fixing bugs on the main project of Arabam.com made easier to understand the logic behind ASP.Net applications.

## Recommendations

I recommend that the students who will take the Project 302 in the future that they should do a careful research while finding an internship. Before starting the internship, it is very important to talk to the companies about the projects they can do. In addition, the department they work with must have a basis for projects. Otherwise, the student may be challenged, and an efficient project may not emerge. The student must be aware of the possible situations.

Students can also create their own ideas, but these ideas must also meet the requirements of the company and Proj 302 course. In addition, I recommend that students should find internships that suitable for the area they wish to work in the future. As a result, I had the experience of two months and had a chance to examine the working environment, people and jobs in detail. After two months, I think my idea of whether or not to work in that field becomes clear. While studying computer engineering or working internship, I was constantly faced with problems and errors. I can easily share and solve these problems with my teachers and assistants while I take classes in the university. But when it is an internship, I found that I couldn't get enough informations from the supervisors. Also my colleagues didn't have time for me because of their work. When I did my own research, I realized that I had access to most of the information. I had to investigate my problems online or through books. Therefore, I can suggest that students should not wait help from their colleagues and that they should investigate everything on their own. Despite this, I met a wide variety of people. I realized that it is very important to meet a lot of people in order to developing in the field.

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