

Marmara University

Engineering Faculty



Electrical and Electronics Engineering

TRAINING REPORT

Student

Name: Şerife KÜÇÜKKÖŞKER

Student ID :150718039

The training is for

☒ EE300

☐ EE400



Electrical and Electronics
Engineering Department



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Student

Name : Şerife KÜÇÜKKÖŞKER

Student ID : 150718039

**Department/semester : Electrical & Electronics
Engineering / 2020-2021 Summer Practice**

**The company name : Konsorsiyum Bilişim Teknolojileri
A.Ş.**

Company Department	Work Done	DATE		Department Head
		Start	End	
Research and Development Department	Meeting and researching topics that energy markets,blockchain technology,voluntary carbon markets.	05.07.21	11.07.21	Atıf Çağatay KOCAARSLAN

Stamp (of the Company) & Signature (Executive Officer)

Business Analysist and Testing	Unit Test and Testing the site	12.07.21	24.08.21	Atıf Çağatay KOCAARSLAN
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Stamp (of the Company) & Signature (Executive Officer)

Weekly Schedules: 1st Week

Date	Tasks Accomplished
05/07/2021	<ul style="list-style-type: none">• Miss ÇELİK informed all interns about company and what they are working on it and to understand better the working area of the company Miss ÇELİK give researching questions so that first week was researching and internship planning week. <p>Research studies was mainly about energy markets and energy market actors. Consequences of my studies are summed up in below.</p>
06/07/2021	<p>What is energy markets?[1]</p> <ul style="list-style-type: none">• Energy markets are market where energy transfer and exchange are made. They are commodity markets that deal specifically with the trade and supply of energy. Energy markets sustain our economies and our daily lives. They are regulated in many parts of the world. In an open energy market, the laws of supply and demand determine the price of energy. <p>Which companies are the energy market actors?</p> <ul style="list-style-type: none">• Elektrik Üretim Anonim Şirketi(TETAŞ) • Türkiye Elektrik Ticaret ve Taahhüt Anonim Şirketi(TETAŞ) • Enerji Piyasaları İşletme Anonim Şirketi(EPIAŞ) • Türkiye Elektrik İletim Anonim Şirketi(TEİAŞ) <p>What are Environmental Markets? [2]</p> <p>Environmental markets are focused on a broad range of challenges—from reducing greenhouse gas emissions to providing incentives for the restoration and protection of forests to improving water quality. Environmental Markets believes market-based solutions create sustainable solutions that work for the environment.</p>
07/07/2021	<p>What are over-the-counter (OTC) markets? [3]</p> <p>An over-the-counter (OTC) market is a decentralized market in which market participants trade stocks, commodities, currencies, or other instruments directly between two parties and without a central exchange or broker. Over-</p>

	<p>the-counter markets do not have physical locations; instead, trading is conducted electronically. In an OTC market, dealers act as market-makers by quoting prices at which they will buy and sell a security, currency, or other financial products. A trade can be executed between two participants in an OTC market without others being aware of the price at which the transaction was completed.</p> <p>What is an organized market? [4]</p> <p>Organized Market is a formal market in a specific place in which buyers and sellers meet to trade according to agreed rules and procedures. Stock markets and commodity markets are example of organized markets.</p> <p>What are the sub-markets that exist under Electricity Markets?</p> <p>Sub markets are divided into two ;</p> <ul style="list-style-type: none"> • Spot Electric Markets (Intraday Market, Day Ahead Market, Balancing Market) • Future Electric Markets
08/07/2021	<p>What are the auction mechanism and continuous trade mechanism in the markets? [5]</p> <p>Continuous trade mechanism: Orders are continuously executed in strict price and time priority. An order entered into the system at an earlier time must be executed in full before an order at the same price entered at a later time is executed.</p> <p>Auction mechanism: In an auction market, buyers enter competitive bids and sellers submit competitive offers at the same time. The price at which a stock trades represents the highest price that a buyer is willing to pay and the lowest price that a seller is willing to accept. Matching bids and offers are then paired together, and the orders are executed</p>
09/07/2021	<p>What are the sustainability activities of the companies?[6]</p> <ul style="list-style-type: none"> • Buying energy efficient items with the ENERGY STAR logo or items that are EPEAT registered for the office. Putting computers in sleep mode when not in use. • Working with suppliers who have the better alternatives and using reusable products and store them for reuse. • Using equipments which has well features and upgrade or repair equipment



	<p>on a regular schedule to avoid any inefficiencies.</p> <ul style="list-style-type: none">• Finding waste exchange program for unwanted material.• Publicizing your efforts it is mean that make a big deal out of your achievements. Show them on website and social media. Because sustainable companies want to do business with companies that share their values. <p>What are the International Renewable Energy Certificate (IREC) and Guarantee of Origin (GO) certificates?</p> <p>[7]</p> <p>IREC:It is a type of Energy Attribute Certificate which represents 1MWh of electricity produced by renewable sources. GO:It is a tradable commodity that represents the environmental benefits associated with renewable power generation. They are traded electronically in the voluntary market for renewable energy certificates.</p> <p>What is the global market volume of carbon markets? [8]</p> <p>At the end of the 2020, The value of the global carbon market increased by 20% in 2020 to \$272 billion.</p> <p>Who are the large-scale market players operating in the carbon markets? China, ICAN(International Carbon Action Partnership)</p>
10/07/2021	<p>What are the activities that need to be done for a sustainable future?[9]</p> <ul style="list-style-type: none">• Investing in renewable energy sources such as solar, wind, and biofuel.• The usage of single-use plastic bags, plastic bottles have bad effect on our Earth so we should start to use green reusable bags and start to have a water fountain or cooler instead of a vending machine that distributes plastic drink bottles in office or somewhere.• We come across news that the Marmara Sea is disappearing due to factory wastes etc. This should be prevented and everybody should fulfill their responsibility towards the environment.



11/07/2021	<p>What is blockchain? [10]</p> <p>The blockchain system is a system of recording information and it is aimed to make it impossible to steal information thanks to this system. A blockchain is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain. Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participant's ledger. The decentralised database managed by multiple participants is known as Distributed Ledger Technology (DLT). Blockchain is a type of DLT in which transactions are recorded with an immutable cryptographic signature called a hash. This means if one block in one chain was changed, it would be immediately apparent it had been tampered with. If hackers wanted to corrupt a blockchain system, they would have to change every block in the chain, across all of the distributed versions of the chain. Blockchains such as Bitcoin and Ethereum are constantly and continually growing as blocks are being added to the chain, which significantly adds to the security of the ledger.</p> <p>What are the usage areas of blockchain? [11]</p> <p>Smart Appliances, Blockchain Healthcare, Smartphones, cross border payments, Asset management</p> <p>What are Public, Private, and Consortium Blockchains? [12]</p> <p>For public blockchain, any individual may access the information, submit transactions that would be effectively confirmed, and participate in the consensus procedures there in. Bitcoin and Ethereum, are all adopting the public blockchain system. A characteristic feature of a private chain is that it is operated and controlled by a single organization. This organization then also determines the rules of the chain. Often, tight partner organizations are involved in the consensus, giving the impression of quasi-decentralization. Consortium blockchain refers to blockchain with consensus procedures controlled by preset nodes. The blockchain may allow everyone or only participants to access or adopt a hybrid access method.</p>
<div>Executive Officer</div> <div>Atif Çağatay KOCAARSLAN</div>	

Weekly Schedules: 2nd Week

Date	Tasks Accomplished
12/07/2021	<p>Today, I met with Bussiness Analyst of company and software development team and Mr.ÇELİK introduced us the technologies that they are used in YEK-G project and why they are use them.</p> <p>Firstly, Miss ÇELİK told me test cases and test scenarios they are currently use in the beginning of the project.</p> <p>While a project is doing, controlling and doing feed-back to software engineering is significant topic for efficient project so that I decided to learn Git and PowerShell terminal.</p>
13/07/2021	<p>Some Topics are learned today about Git;</p> <ul style="list-style-type: none"> • Initializing git project in local [13] • Adding files to git project [14] • To commit the changes waiting on working tree.[15] • To see the all previous commits.[16] • To see the contents existing under the current directory. <ul style="list-style-type: none"> ➤ dir • Create and remove directory. <ul style="list-style-type: none"> ➤ Make Directory (mkdir) ➤ Remove Directory (rmdir)
14/07/2021	<p>GitHub enable store the project files.These project files saved with the changes made with using git commands in PowerShell terminals.</p> <ul style="list-style-type: none"> • How to see which files are changed.[17] • Removing and renaming file using git.



	<ul style="list-style-type: none">➤ Remove (rm)➤ Move or Rename (mv)<ul style="list-style-type: none">• To see difference between current and previous version.➤ Difference (diff)<ul style="list-style-type: none">• To determine which files will be excluded.➤ Related file names should be placed in “.gitignore” file
15/07/2021	PUBLIC HOLIDAY
16/07/2021	<ul style="list-style-type: none">• Learning Meaning of public and private meaning in git.• To link remote server and git.[18]• Pushing the changes.[19]• Pulling changes from server.[20]• To clone the files from remote server if the project is not exist in local <p>[21]</p>
<div>Executive Officer</div> <div>Atıf Çağatay KOCAARSLAN</div>	



Weekly Schedules: 3rd Week

Date	Tasks Accomplished
26/07/2021	<p>Today, I started to learn java programming because the project which is YEK-G done with using java and while I was testing the site I need to understand the codes.</p> <p>Firstly, I began with Basic Java constructs like loops and data types.</p>
27/07/2021	<p>I continued with strings;[22]</p> <p>Strings are used for storing text.</p> <p>Syntax:</p> <p><String_Type> <string_variable> = "<sequence_of_string>";</p> <p>Example:</p> <p>String str = "Serife"</p> <p>When a string object is created, the object will be created in String constant pool. The string can be declared using new operator dynamically allocated. In case of strings are dynamically allocated they are assigned a new memory location in heap. For example;</p> <p>String str = new string("Serife")</p> <p>The Java String class equals() method compares the two given strings based on the content of the string. If any character is not matched, it returns false. If all characters are matched, it returns true.</p>
28/07/2021	<p>Today, I started to learn object oriented part of Java programming. The topics which I covered today;[23]</p> <ul style="list-style-type: none">• Encapsulation• Constructors• Arraylists• Inheritance



29/07/2021	<p>The topics which I covered today;[24]</p> <ul style="list-style-type: none">• Override• Polymorphism• Interface• Abstract Classes <p>In addition, I have done a small project as using methods which I learned.</p> <p>You can visit my GitHub to see my study.</p> <p>https://github.com/SerifeKucukkosker/string_code</p>
30/07/2021	<p>Today, I did another project. You can visit my GitHub to see my study.</p> <p>https://github.com/SerifeKucukkosker/java_proje</p>
<p style="text-align: right;">Executive Officer</p> <p>Atif Çağatay KOCAARSLAN</p>	



Weekly Schedules: 4th Week

Date	Tasks Accomplished
02/08/2021	<p>Today, I have start to test the notification messages in YEK-G fixed by backend software developer.[25]</p> <p>In Bilateral Agreement Aproval and Bilateral Agreement Pending Approval pages, I created many cases and checked whether the notification messages and e-mails are true or not with different user login. At the end they both supposed and coming messages are same and these cases are passed.</p>
03/08/2021	<p>In Bilateral Agreement Withdrawal System page, I logged in the YEK-G system as admin. I created some cases about cancellation bilateral agreement and checked if the coming and supposed messages are correct. Some coming messages are not same with the supposed messages so I reported the problem to the back-end software developer MR. Satıcı. [25]</p>
04/08/2021	<p>In Objection page, I created some objections with user account and responded the objections with admin.I checked if the coming and supposed nificications both mails and messages are same with each other.At the end they are the same and these cases are passed. [25]</p>
05/08/2021	<p>In Organization Registiration page, I registered some organizations to the system and I made transactions such as update,active and passive the organizations after these when I transactions coming and supposed notifications I saw that they are same with each other and these cases are also passed. [25]</p>
06/08/2021	<p>In Issue Transactions page, I create certificate and then made some processes to the certificates which are named as expiry and cancellation in user account. Expiry's mean is that out of date because it does not match any certificate.After these transactions notifications are the same with expected notifications so these cases are passed.</p> <p>I have done all the test about notifications and forwarded inconsistent messages to the relevant departments. [25]</p>
<p style="text-align: right;">Executive Officer</p> <p>Atif Çağatay KOCAARSLAN</p>	



Weekly Schedules: 5th Week

Date	Tasks Accomplished
09/08/2021	<p>Today, I start to test transaction history of YEK-G system.</p> <p>In the Organization and Powerplant Registration page, Firstly, I registered the companies with using organization names and IDs to the YEK-G System with the admin account. Then, I changed the registration status as active and passive. Finally, when I looked at the transaction history in log part the messages are consistent with supposed so that these cases are passed. [25]</p>
10/08/2021	<p>In the Issue Transactions page, I created certificates and did some changes on the certificate with admin account. When I wanted to activate or pacify and expired or cancelled the certificate there was no log record in transaction history because these cases are reported to the backend software developer Mr.SATICI. [25]</p>
11/08/2021	<p>In the Bilateral Agreement page, I created bilateral agreement request in the user account then I approved or denied the bilateral agreement request in the admin. When I checked the transaction history in the log part these messages are consistent with supposed so that these cases are passed. [25]</p>
12/08/2021	<p>In the System Parameters page, I created parameters, updated parameters or deleted them. In addition, I created holiday day with in admin. When I checked the transaction history I saw that the messages were consistent with supposed messages so that these cases are passed. [25]</p>
13/08/2021	<p>Today, we had a meeting about Energy Sector Transformation and R&D Pathways. The meeting presented by Asst. Prof. Dr. Mustafa Alparslan ZEHİR who is R&D advisor of company.</p> <p>The titles of meeting were;</p> <ul style="list-style-type: none">• Overview of Trends & Challenges Shaping Power System.• Effective DER Integration and Grid-Responsive Management• Current Limitations and Directions for Future Research <p>Joining this meeting and discussing the topic were beneficial for me. About above topics my horizon is broaden.</p>



Executive Officer

Atıf Çağatay KOCAARSLAN



Weekly Schedules: 6th Week

Date	Tasks Accomplished
16/08/2021	<p>Today, we had a meeting about Voluntary Carbon Markets as we search about that topic and we had a design thinking about bringing the voluntary carbon markets to Turkey.</p> <p>Voluntary carbon markets means that as I explained before is, enables to companies purchase carbon offsets to offset their emissions voluntarily. One offset credit is given for every ton of greenhouse gas that is reduced or avoided.</p> <p>In this meeting, my suggestion was coopareting with universities. According to my opinion, university which is cooperate with will give the student card which named as green card and price of that card will be slightly more, such as 5 liras. Having and giving this card to students will show that the university is environmentalist. With usage of this card, reduction of amount in terms of ton carbon certificate will produce and these certificates will buy and sell in Voluntary Carbon Markets which named as X-Carbon.</p> <p>Incoming days, details of this market named as X-Carbon will be disscussed and improved.</p>
17/08/2021	<p>Today, I start to test responsive of the site which named as YEK-G.</p> <p>In Organized Market Transaction page, when I opened the offer and market transactions, market results and objections pages there was many pop up in the pages and in this pop up some mistakes were available. I reported these mistakes to frontend developer MR.ACAR and he fixed these mistakes. [25]</p>
18/08/2021	<p>In Market Transactions page, when I opened the active YEK-G certificates, Expired certificates and withdrawal certificates pages there was many pop up in the pages and I checked all of them. There was also some mistakes in these pop-ups so I reported these mistakes to MR.ACAR to fixed these mistakes. [25]</p>
19/08/2021	<p>In Market Transactions page, I opened the sub-pages of that page which are named as Issue Transactions, Cancellation Transactions, Cancellation Transaction History and Bilateral Agreements pages there was many pop-up in these pages and there was also many problems about these pop-ups and I reported</p>



	these mistakes to MR. ACAR to fix these mistakes. [25]
20/08/2021	Today, we had a meeting about X-Carbon project. In this meeting we discussed how the market will work and we planned our work to design of X-Carbon. The market will be designed by us and at the end of this meeting, we distributed our duties and my duty was testing the backend codes and frontend of site.
Executive Officer Atif Çağatay KOCAARSLAN	

Weekly Schedules: 7th Week

Date	Tasks Accomplished
24/08/2021	<p>In Settlement, Invoicing and System Parameters pages, when I opened the sub-page of these pages there was many pop-up and when I checked whether there is any mistake is available or not I saw some mistakes in the pop-ups and I also reported these mistakes to MR.ACAR by this way I completed all the responsive test of YEK-G.</p> <p>At the end of the day, Konsorsiyum informed me to continue my internship as test manager intern to test X-Carbon Market.</p>
Executive Officer Atif Çağatay KOCAARSLAN	



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1. INTRODUCTION

I am Şerife Küçükköşker, I will do my internship in Konsorsiyum Bilişim Teknolojileri A.Ş.. The company which is do my internship is working on sustainability.

The company is developing a system which named as Yenilenebilir Enerji Kaynak Garanti Sistemi (YEK-G) for EPIAŞ.

I will do my internship as a bussiness analysist besides I will learn Java Programming Language simply to understand the codes clearly. In the YEK-G system I will test backend and frontend of site to report software developers of the company.

I will add GitHub repository link above to show my studies for my java studies.



2. ABOUT THE COMPANY

The company which is doing my internship Konsorsiyum Bilişim Teknolojileri A.Ş. is working for sustainability and produce solutions for that and it is a software development company for EPIAŞ for now, incoming days the company planning a new project which named as X-Carbon and this project named will be published as their company name.

If you visit the website of company you can see informations and sustainable solutions which is produce by the company.

The website of company : <https://www.konsorsiyum.io/>



3. PRACTICAL TRAINING

Doing my first internship as a bussiness analysist in Konsorsiyum Bilişim Teknolojileri A.Ş. is very beneficial experience for me.

I explained all the topics that I covered detailly. I explained the all the tests which is done by me and explained the topics I learned. If you want to see my studies you can visit my GitHub account from which I put the links above.

I will explain the Git Version Control System, Java Programming and test cases.

GIT VERSION CONTROL SYSTEM

Version Control system is very common system for software developer because each development store the control system and you can upload the changes and download changes from other and its enable you to collaborate easier with other developers. I also learned the Git to see the changes with using “git clone” to copy of target repository. That is why I learned the Git Version Control System process of my internship.

Git files stored on computer storage and these files can be uploaded to the GitHub by using git.

[26]

JAVA PROGRAMMING LANGUAGE

Java Programming Language has widely usage area in software. It is used for create standalone applications. They may run single computer form or in a distributed network. It is also used to create a small aplication programs based on applet.[27]



Java Programming is a object oriented programming language. It has all OOP features like encapsulation, polymorphism, inheritance and abstraction. Object oriented properties makes the language much flexible, system modular and extensible.

TEST CASES

When a project growt, the classesler and methods amounts are increase so changing in part of your codes becomes difficult does not break things somewhere else that is why unity test is used for it. Unit test allows you check all part of your codes and it saves time by identifying where the mistake in your code. It is rather than relying on manuel testing that is why I covered unit testing. To check the codes and finding the mistakes very important to proceed in the project effectively.[28]



4. CONCLUSIONS

As a result, I have done my internship between 05.07.2021-24.08.2021 as a business analyst and I learned java programming during my internship.

I am proud to be part of Konsorsiyum during the internship and I feel lucky for being an intern in that company because everybody in the Konsorsiyum was very kind and helpful to us. Thanks to Konsorsiyum I added a lot to myself because when I have any question they answered my questions kindly.



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Marmara University Training Report



Marmara University Training Report

İŞ YERİ

KURUMUN ADI : Konsorsiyum Bilişim Teknolojileri A.Ş.

BÖLÜM : Research and Development Department, Business Analyst and Testing

STAJYER ÖĞRENCİNİN DEĞERLENDİRİLMESİ (*İş yeri yetkilileri tarafından doldurulacak*) 1:
Zayıf.....5: Mükemmel şeklinde notlandırınız.

İŞ YERİNE UYUM :

ÇALIŞKANLIK :

YETERLİLİK :

KARAR VERME :

İŞ DİSİPLİNİ :

TAKIM ÇALIŞMASINA YATKINLIK :

DÜŞÜNCE VE ÖNERİLER (VARSA):

SORUMLUNUN ADI ve SOYADI :Atıf Çağatay KOCAARSLAN

ÜNVANI :

İMZASI :

(Firma Kaşesi/Mührü)

Tarih/...../.....