
# GEBZE TECHNICAL UNIVERSITY

# COMPUTER ENGINEERING DEPARTMENT

# CSE 343 – SOFTWARE ENGINEERING
# ONLINE SEARCH ENGINE
## Version 1.0

# GROUP – 1

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# ~~*MODULES*~~

## DATABASE:

Rıdvan PORTAKAL
Emrullah GENÇOĞLU
Deniz BABAT

## SOFTWARE:

Furkan Mustafa AKSOY
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Emrah KORKMAZ

## INTERFACE:

Caner BAKAR
Bekircan AĞAOĞLU
Emrah KORKMAZ

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# Project Overview

## *Project Overview*

Project is given to as an online search engine. Query that is wanted to be searched is written to the search bar and results are shown to the users.

## *Purpose and Scope of this Specification*

In specification part, software is determined to how it will be. In this subject same decisions are taken with customers. In scope of specification, we point out, we will be able to do that customer requests. Out of scope, we point out that we can not do.

### *In Scope*

- Search bar
- A window that shows the result of search
- Screenshots of site
- History bar
- Correction of mistyped words (Did you mean)

### *Out of Scope*

- Language option
- Instant database update

# Feasibility Study

## Product Context

This search engine can find websites with screenshots in table, and Users reach this sites with index of pages

## User Characteristic

In generally Search Engine Users constitute the “project user base” with agreeing each other about accuracy of search results and UX experience. In design part, while we are applying simplicity and usability, with using algorithm for the Search Engine, results significance will be higher.

## Assumption

In first place search engine will be used by small group parts and this situation makes harder making assumptions. If there was more users which are using our engine, we would make improvement our systems

## Constraints

Just as constraints of every project, Search Engine will have some feature about that. Just as there is no language option and no instant database update

## Dependency

Considering working structure of Search Engine, dependency of server is a most important point. A server that computes all data and send this data to clients is significant part for the Search Engine.

# Requirements Elicitation and Analysis

## Functional Requirements:

***WebSpider Class***

*startCrawling(URL startingUrl):*
starting from <startingUrl> collects all website data.

***Parser Class***

*parseHtmlData(String data):*
This class separate the text, word by word.

***Hasher Class***

*hashWords(String word):*
Indexing to URL addresses considering to words.

## User Interface Requirements

- Button for the part of history window
- Form that is written query
- Search button for the query

History window of the project include title, content and URL.

Result page the of search will have 10 URL per page, Left side of the page will include title, content and URL, right side of the page will include screenshots of pages.

## Performance

HashMap<KEY,VALUE> ADT include URL addresses as a VALUE and words as a KEY. Finding a word in hashMap make algorithm to constant time O(1) in average case.

# Requirements Specification

## Managebility/Maintanability

If User couldn't connect to Server, User would get message "Retry connection". In this case, due to search history is keeping on local, it can be accessible but can not be search.

Operations which are done from beginning of the Server will be written to special file and program give error message to user before exit.

**Example:**
Query "uraz" is being looked in database.
Exception: ArrayIndexOutOfBoundsException

Side of Client, if there were exceptions, information is sent to client and client will have a log file.

***Monitoring***

Maintenance of search engine is done per week. In maintaining include error detection and customer request.

***Maintenance***

Updating of database with adding new words to database. Considering to customer request, user interface can be upgraded.

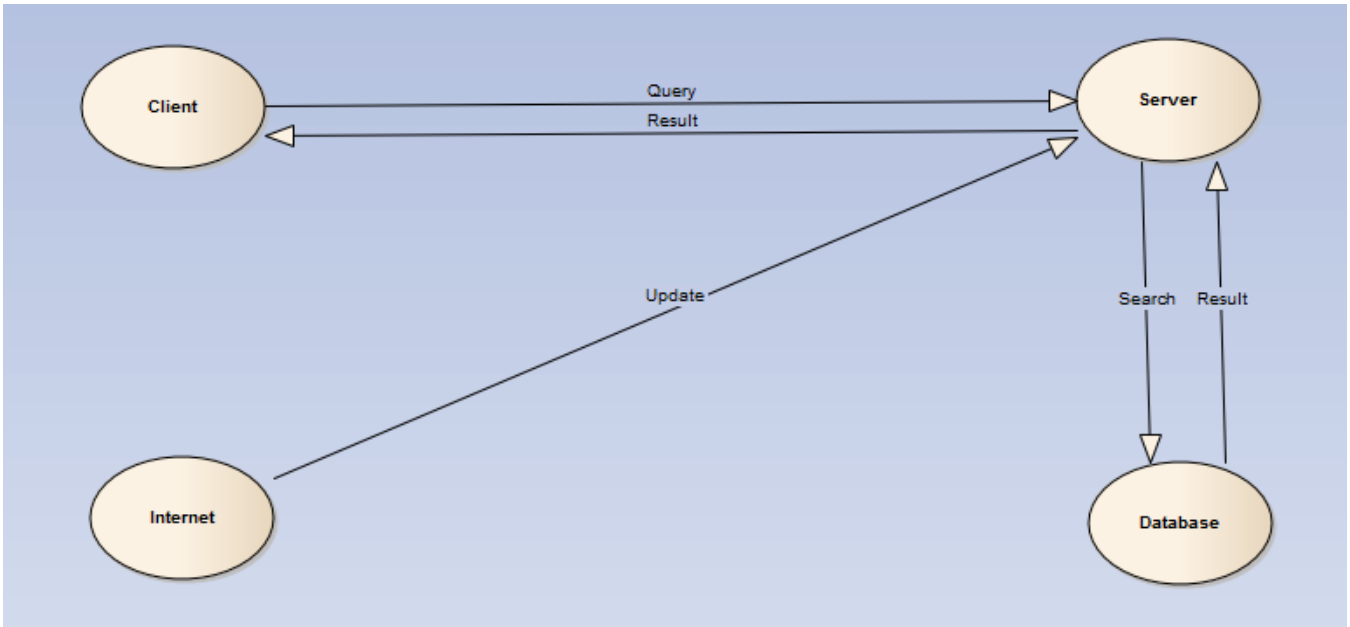
***Operations***

- With search bar, data can be found in database
- In visual of page, URL and screenshots can be shown
- Saving history
- Did you mean?

## System Interface/Integration

- Client enters the Query for searching.
- Server takes the Query and search in database.
- Taking from result of database is sent to Client for 10 URL.
- Client takes URL and parse for the title, content and beside this takes
- screenshots, show to user. If User want to skip other page. Server will send 10

- URL to client.




## Data Management

***History***

- Date for sort the history
- Link for pass the page with click

Tablo1

| Date | Link |
|---|---|
| 22.03.1994 | www.aa.com |
| 22.10.2016 | www.bb.com |
| 30.10.2016 | www.bcc.com |
| 23.10.2016 | www.dd.com |
| 31.10.2016 | www.ege.com |
| 03.11.2016 | www.dnd.com |

***Database***

- There will be a word in each line and it will keep their link.

DataBase

| words | link1 | link2 | link3 | link4 | link5 | link6 |
|---|---|---|---|---|---|---|
| orange | www.o1.com | www.o2.com | www.o3.com | www.o4.com | www.o5.com | www.o6.com |
| pencil | www.p1.com | www.p2.com | www.p3.com | www.p4.com | www.p5.com | www.p6.com |
| food | www.f1.com | www.f2.com | www.f3.com | www.f4.com | www.f5.com | www.f6.com |
| car | www.c1.com | www.c2.com | www.c3.com | www.c4.com | www.c5.com | www.c6.com |
| school | www.p1.com | www.c2.com | www.f3.com | www.p2.com | www.c6.com | www.o4.com |

### Standards Compliance

As a working environment, Linux-Ubuntu OS will be used.
In another computer will be using as Server with accessing to database.
Naming of data will be used as Hungarian Notation.
Object-Oriented design will be used in this project.

## Requirement Validation

Verification and validation to the if system fits specifications and customer demands.

### Requirements

- Search Bar
- "Did you mean?" feature
- Screenshot of the result
- History
- Result window

Does specification satisfy customers demands?

Our customer asked for an user interface which user can enter a query for search and take results, get previous searches and correct mistyped words. Our search engine contains them all.

### Controlling of Requirements

***Validity***

Does system provide customer needs? Yes, because we create specifications according to customer demands.

***Integrity***

Does customer need reasonable? Yes, they all are basic features of an internet search engine.

***Accuracy***

Does project contain all of the customer demands? Yes.

***Realism***

Can specifications accomplish current technology and budget?

If we look other search engines, they're using nearly same algorithm. So yes it can.

## User Scenario and Use Case

### User Part

- The online search engine project can be use as user or as administrator.
- Both user and administrator can do searching and view searching history.
- Administrator can update database.

***Management Part***

Administrator can change the program by updates, update the database and read log files