

RadeX

User Guide

Tiran Software
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1. INTRODUCTION

1.1. About RadeX

RadeX is a product of Tiran Software developed as our senior project. It's capable of extracting useful information out of radiology report and stores them in database such that it's easily searchable on demand.

1.2. System Requirements

Although the minimum requirements are low, i.e. almost every computer on the market can run the program, we recommend a computer with a good CPU and a lot of RAM, since the speed of the analyzer module is highly resource demanding.

Recommended Hardware:

- 1.6Ghz and above CPU
- 1Gb Ram
- 500Mb Hard disk space

1.3. Installation

In order to run RadeX, you need to install PostgreSQL and Java Runtime Environment 1.5 or above. To install radex simply follow the instructions of the installer.

2. USER INTERFACE

2.1. Main Window

From the main window, you can reach all of the functionalities of the program. There are two main tasks the user can do with RadeX, namely extracting information from radiology reports and searching for information in database.

2.2. Analyzing Reports

2.2.1 New Report

This brings a template for a new report. Here you can write a report from scratch and press the analyze button to see what is extracted.

2.2.2. Open Report

As the name implies, you can open an existing report, then press the analyze button to extract information.

2.2.3. Open Reports with Zip File

You may also want to analyze multiple reports at once and send to database. Here you can select a Zip file containing the reports that you want to analyze. It will automatically process all the reports and send to database.

2.2.4. Spell Check On/Off

By pressing this button you can enable/disable the spellchecking while analyzing the report. We recommend you to turn it on if the report contains a lot of typos, otherwise just turn it off.

2.3. After Analyze

2.3.1 Edit and Send to Database

After pressing the “Analyze” button, all the extracted information will be displayed as a list. Now you can press “Send to Database” button to send. Also you have the option to correct mistakes (if any) of extracted data by just editing the textboxes and then send to database the correct data.

2.3.2. Compare Screen

You can reach “Compare” screen by pressing the “compare” button on the toolbar or by right clicking a report name in the extracted tab, and press compare. In this screen you can see and compare what is extracted with the preprocessed / original sentences. It’s recommended to use this screen when you want to see the success rate of analyzer.

2.4. Search

2.4.1. Doctor Search

Doctor search includes two functionalities together: Google-like search and advanced search. They can be used together or separately. Using them together will result union of the separate results.

2.4.1.1. Free-Text search:

It is nothing harder than using search engines like Google, Yahoo. The words to be search are written to text-field. And press search!

A few details may increase performance of results;

Searching for more than words will return reports if any of the words are present in report. To make sure that a word is in a report, user should add a '+' character just before the word. For example, searching for “aorta koroner efüzyon” will return a report if it includes any of these words. (Results which include all of them will be on top though.) Searching for “aorta koroner +efüzyon” will make it guarantee that the results MUST include word efüzyon.

It is also possible that searching for word groups. For example, to search “perikardiyal efüzyon” together, the user must type escaping characters before inverted-commas. The query must be “perikardiyal efüzyon\”. (Reason for escaping characters stems from lucene query parser.)

2.4.1.2. Advanced search

Clicking “+” button below search button will add search criteria.

To add a regional option, user can fill “Bolge” field. (e.g. “aorta duvarı”)

To add a problem observed, user fill “Problem” field. (e.g. “lenf nodu”)

To specify the condition of the problem, user can select one of the predefined values.

It is possible to fill only one of the fields and also both of the fields.

To delete a search criteria, user clicks “X” button.

It is possible to make different logical conditions among the criterias. AND/OR field specifies how to process search criterias logically.

Example usage:

Searching for;

Bolge: akciğer

Problem: nodül

Durum: var

shows reports if they have an extracted data like “akciğerde nodül”.

Searching for;

Bolge: akciğer

Problem: nodül

Durum: var

AND

Bolge: posterior lateral kesim

Problem: sklerotik alanlar

Durum: var

shows report if they have both of extracted data like “akciğerde nodül” and “posterios lateral kesimde sklerotik alanlar”

Using both free-text search and advanced search unions the results.

Right clicking on a search result, a pop-up menu appears. User can select to “display report”, to “show report summary”, to “show similar report”.

“Display report” will show report in a new window.

“Show report summary” will show extracted information related to report.

“Show similar report” will show similar reports to that report in the way of extracted information.

There are also other search facilities other than doctor search.

“Search problem” lists finding results.

“Search yapı” lists regional finding results

“Search olcum” lists measurement finding results.

“Search rapor” search among the reports according to their meta-data.