Software Requirements

Software Requirements Specification (SRS)

Revision History:

Date	Author	Description
4-15-2021	Jia Ding	Adding/Editing Introductions, Concept of Operations and Use Cases
4-18-2021	Hangting Ye	Adding System Inputs and Outputs, Fundamental Assumptions and Appendices
4-19-2021	Hangting Ye	Editing the Introduction
4-20-2021	Hangting Ye	Editing the Use Cases
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4-26-2021	Hangting Ye	Editing the System Inputs and Outputs
5-2-2021	Hangting Ye	Editing the Use Cases

Contents

1. Introduction

1.1　Purpose

This documents is intended to provide information about how to use the system to upload X-rays and get the results of the representation of COBB.

1.2　How to use the document

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2　System Context

System Requirements:
Requires a system with a GUI display because all of the operations are performed through a GUI. The application is in Java so users must have an updated version of Java installed on their machine to use the application.
<u>Windows:</u>

- Windows 10 (8u51 and above)
- Windows 8.x (Desktop)
- Windows 7 SP1
- Windows Vista SP2
- Windows Server 2008 R2 SP1 (64-bit)
- Windows Server 2012 and 2012 R2 (64-bit)
- RAM: 128 MB
- Disk space: 124 MB for JRE; 2 MB for Java Update
- Processor: Minimum Pentium 2 266 MHz processor

<u>Mac OS X:</u>

- Intel-based Mac running Mac OS X 10.8.3+, 10.9+
- Administrator privileges for installation

<u>Linux:</u>

- Oracle Linux 5.5+[1]
- Oracle Linux 6.x (32-bit), 6.x (64-bit)[2]
- Oracle Linux 7.x (64-bit)[2] (8u20 and above)
- Red Hat Enterprise Linux 5.5+[1], 6.x (32-bit), 6.x (64-bit)[2]
- Red Hat Enterprise Linux 7.x (64-bit)[2] (8u20 and above)
- Ubuntu Linux 12.04 LTS, 13.x
- Ubuntu Linux 14.x (8u25 and above)
- Ubuntu Linux 15.04 (8u45 and above)
- Ubuntu Linux 15.10 (8u65 and above)

3. Use Cases

3.1 Case 1 ： User Wants to Get Angle from the Spinal X-ray

Players: End User
Goals: The end user wants to input the target spinal X-ray and then get the angle from the image**.**
Preconditions: The application is open and running.
Case:
1.1 From the Main menu, the end user selects the "select the image" option
1.2 The end user enters the Image menu and selects the "upload" option
1.3 The end user is able to select the target image from the local files and then select the "confirm" option.
1.4 The user selects the "generate the angle" option.
1.5 The application outputs the angle of the target image.
Alternate Flows:
1.2.1 The user selects the "generate the angle" option without uploading any files
    The user is warned about uploading image first.
1.2.2 The user uploads a file with the wrong type
     The user is warned that you should upload the image with the right type.
1.2.3 The user uploads multiple files at once
      The user is warned that only one file can be uploaded at a time
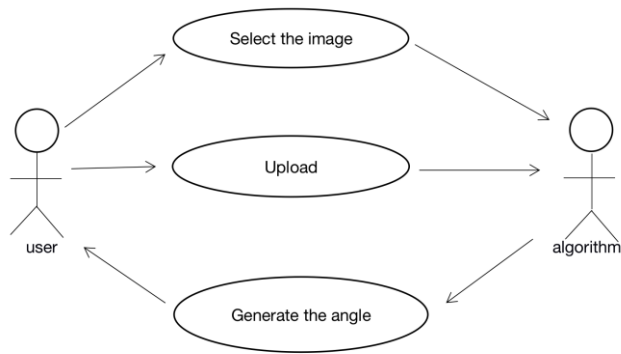**Exception Flows:**
1.2.4 The algorithm can't distinguish the image or calculate the angle
      The application will warn that "the image is illegal!"
Postconditions: A new window is opened with the angle of the target image

Diagram:

3.2Case 2 ：User Wants to Get Marked Image from the Spinal X-ray

Players: End User
Goals: The end user wants to input the target spinal X-ray and then get the marked image
Preconditions: The application is open and running.
Case:
1.1From the Main menu, the end user selects the "select the image" option
1.2 The end user enters the Image menu and selects the "upload" option
1.3 The end user is able to select the target image from the local files and then select the "confirm" option.
1.4 The user selects the "generate the marked image" option.
1.5 The application outputs the marked image.
Alternate Flows:
1.2.1 The user selects the "generate the angle" option without uploading any
         files
         The user is warned about uploading image first.
1.2.2 The user uploads a file with the wrong type
          The user is warned that you should upload the image with the right type.
1.2.3 The user uploads multiple files at once
           The user is warned that only one file can be uploaded at a time
Exception Flows:
1.2.4 The algorithm can't distinguish the image or calculate the angle
          The application will warn that "the image is illegal!"
Postconditions: A new graphic file is opened which shows the mark points of spinal.

Diagram:
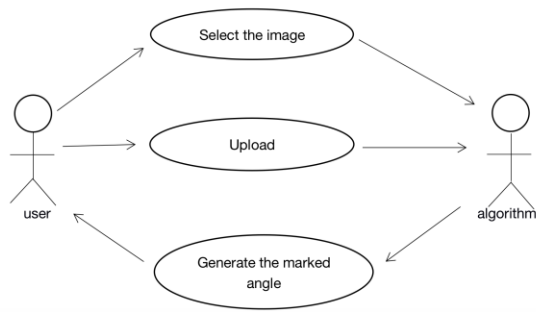
4 System Inputs and Outputs

4.1.Inputs

A series of processed X-rays will be fed to the system.These images contain information about human spine bones. After processing, some features will be extracted by the system.

4.2 Outputs

The system will output the COBB representation of the spine.

5. Fundamental Assumptions

The application can run on any system.
The application will not terminate when all windows are closed.
Software updates will be downloaded by the end user as opposed to pushed out by the developers.

6. Appendices

6.1 Definitions

Keyword	Definitions
COBB	The severity of scoliosis is mostly evaluated by measuring the contralateral bending angle, and the most common angle measurement is the Cobb angle measurement method. The X-ray film used for measurement is the normal phase of the standard full length of the spine.

6.2   References

Comments are disabled for this space. In order to enable comments, Messages tool must be added to project.
You can add Messages tool from Tools section on the Admin tab.