dynniq

energising mobility

Senior Java Developer Test case

Explanation of the test approach

1. Intention of this test is not just to prove that can you write code, but to see *how* you code, and more importantly, to see how you *think*.
2. We don't expect from you to implement everything and write all mentioned documentation, but it would be good that you have at least rough drafts of code and documents/diagrams. What is important is that we get an idea of what you can do.
3. There is quite a lot of technical jargon, and I realise that this might be hard to understand for a non-native English speaker. If you have any questions, ask!

First please read the project description, consider the problems, technologies, approaches, etc., and then create a very rough estimate (# of days/months) of how much time it would take to implement this project completely. Don't forget to include in the estimation any non-development tasks that you think that would also be needed to successfully complete the project.

dynniq

energising mobility

Design and implement Web service for Image processing

Design and implement a Web service that will act as an image processing library. The library/service will receive a bitmap image and a list of points and produce SVG document that shows vectorised areas of the image that surround the specified points ("flood fill" areas). SVG elements should have a minimal required number of points but still match the vectorised area of the image. Produced SVG document will be returned as response. Record of the action will be stored in database. It is your choice to decide what to put in the record.

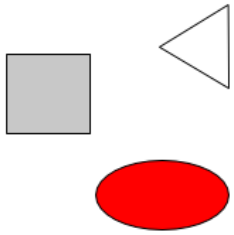
Additional (optional) items:

- Implement Client side application that will be used to fetch records through that Web service.
- Access to web service must be protected and restricted.

Sample points to use:

Id	X	Y
1	31	75
2	149	37
3	132	141

Sample image to use (also provided in attachment):



Constraints

- Must be implemented in Java programming language – version 1.8
- Project(s) must be implemented in Eclipse development environment
- Database must be PostgreSQL

Expected Delivery

- Eclipse projects – zip archive of whole/all projects – including source code and all 3rd party libraries used (required for compilation)
- SQL scripts for creating database schema (if needed)
- Design document – written in some of the standard tools
  - MS Word / Open Office, etc.
  - Diagrams (if any) – have to be drawn with "yEd" application or delivered in PNG format
- Design document should describe:
  - High level design
  - Database model description
  - Web service API
  - Explanation of design decisions (why some technology/library/approach was chosen, etc.)

NOTE: It must be fairly easy to setup development environment for project and run it on one of our Computers – so take care that you prepare and bring everything that will be needed, but cannot be downloaded from internet.

Options

- Any Java Web container can be used (Tomcat, Jetty, etc.) - explain in design doc - which one was chosen (+version) and why (what are its advantages)
- Web Service can be SOAP, REST, … – whatever you choose – explain in design doc
- Client application can be (pick any one) :
    - Console application
    - Desktop app - Any Java technology (Swing, SWT, …)
    - Web based Client - any Java Web technology
    - Mobile phone app

Remarks

- It is allowed to use third party libraries for loading the image data and generating the SVG document
- It is allowed to use existing (if any) flood fill algorithm implementations in Java.