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Abstract

Signadocs is an online web application with the intent of providing an efficient way of managing documents digitally and keeping track of their status. By using digital signatures and keeping track of a document status it eliminates the need of paper printing to manually sign a document and having the need to scan it once finished. It gives the comfort of having documents stored safely on the cloud and knowledge of where a process stands, it also eliminates the hassle of having to search through email looking for a specific document. Signadocs can be easily accessed by all major web browsers. A lot of organizations have a gigantic amount of data and information that, if not handled properly, causes a waste of opportunities, that is why an efficient document management system is necessary, which allows us an easy management and storage of information, fast searches, and personalized consultations.

Introduction

On this digital world we live nowadays, we are still having issues to adapt on how things were done before moving them to a digital phase. We are on a constant digital transformation phase where we have found to better processes we did before. Documents are no doubt an integral part of any organization during which many documents are created and processed daily. The pandemic has forced people to work from home and to have the need to digitize documents. Things that we were not used to and eventually the daily work including its load has delayed, for example: in the registry office of a university, thousands of emails began to be received to help students with their different needs. This has increased the number of emails received and can quickly lose focus on general and or a specific work task. That is why the power to simply and systematically store, archive and obtain documents is significant to form sure that each one employee is on the identical page and dealing on the foremost current information available. With the help of Signadocs we can improve the way we handle our documents.

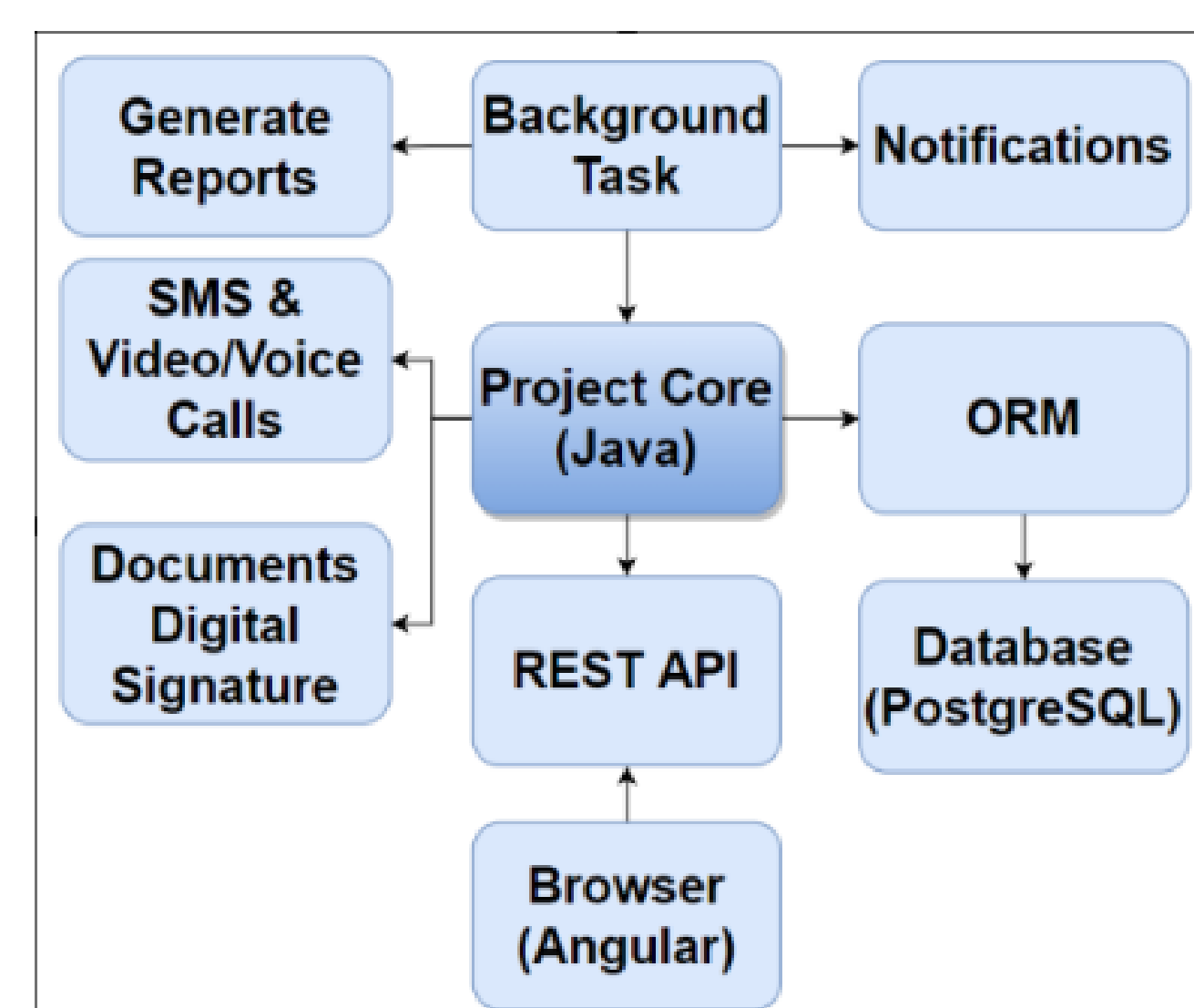
Problem

Due to the COVID-19 pandemic we have had to adapt to social distancing and lockdowns.[1] There is a problem in a lot of schools and universities where their processes were conducted manually and had to quickly change these operations to a digital process. Now to register in schools there is a paperwork process that needs to be taken care of. Not only to register a student, but the faculty also needs to take part on different processes between school year. For examples, requesting graduation, requesting a reclassification, evaluation of equivalent courses taken in other institutions by the director and generated by the registry at the student's request, delivery of medical documents to meet admissions requirements and of course to request for medical records to a department. Maintaining track of documents can be very difficult when its being handled by email or messaging applications. There has been time when a faculty member requests a signature from a student or another faculty member and have no idea how long it would take to complete the task, this would require the requester to download or print to document, sign it, and resend the document.

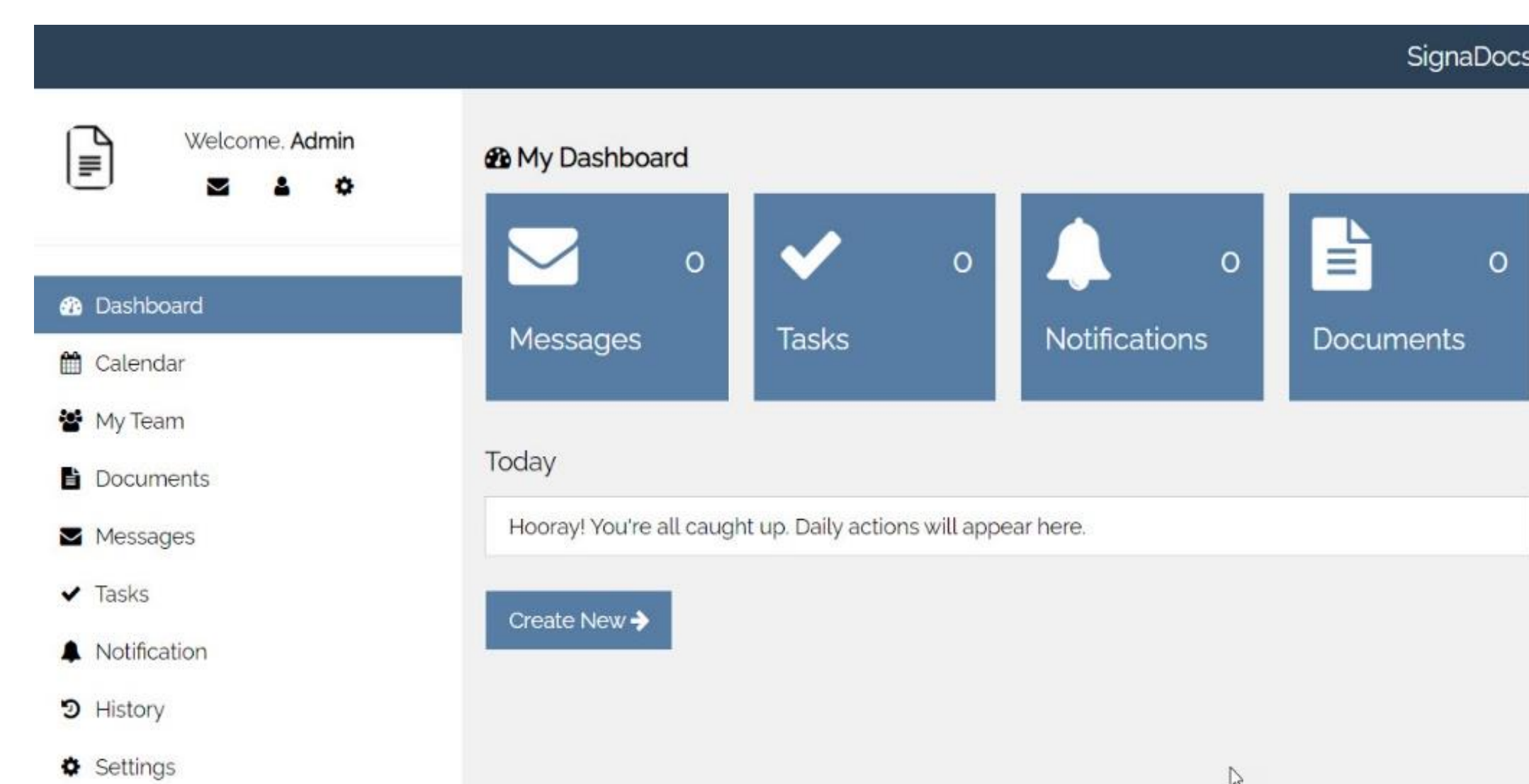
This could easily lose interest between multiple emails and other requests being handled this way, extra steps could be added if actions were done incorrect or communication was not clear. In other scenarios we might have is where a user needs to delegate a task due to any reason causing this member to be permanent or temporary out of party.

Methodology

During development of any project, facing various challenges is a common process. Creating modern software is a complex process involving not only writing the code but also engineering the solution, provisioning what modules should it has, whether some of them are required or not, will be successful or not and prioritize tasks considering the terms, the goals, and requirements. While engineering Signadocs, many challenges were faced and addressed. Some of the challenges that came across where: choosing to go as a desktop application or going as a web application.[2] Choosing web over desktop gives us the advantage of being able to use the application on any device that has a web browsing capability it also gives us the liberty of using methodologies as "code once works everywhere". One of the biggest challenges was cost [2]. Developments IDE, frameworks and database engines can be very expensive. To reduce costs, I have chosen to work with the following combination of technologies: Java for the back-end piece, Angular for front-end, PostgreSQL [3] as a database engine, Spring boot for security and AWS for hosting. All technologies mentioned are open source meaning these could be use completely free, except for AWS cloud hosting but choosing cloud vs on-premises [4] still costs us less due to building services serverless, at this point it is more beneficial having variable costs and hosting on the cloud the building and maintaining an on-premises server.



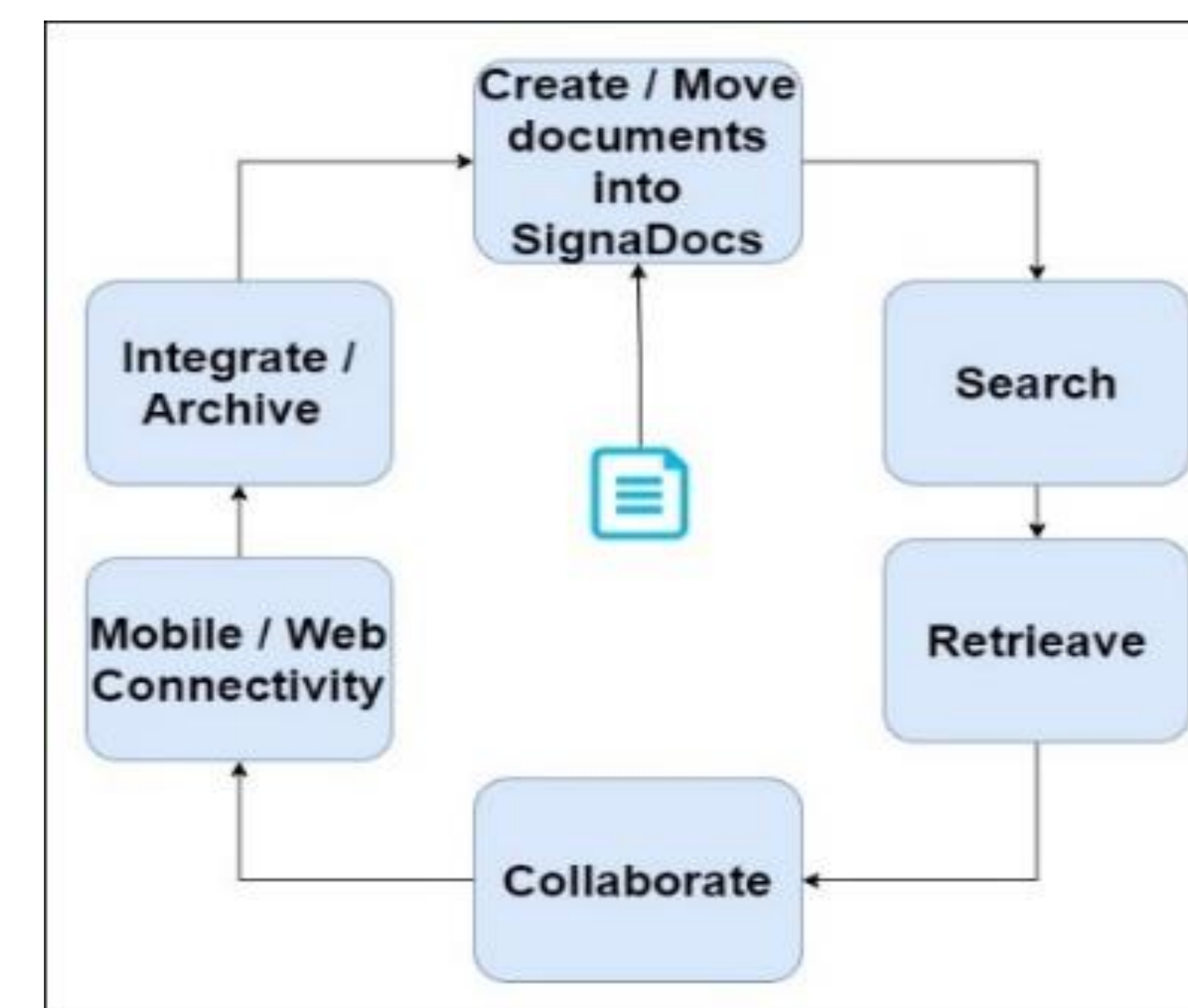
Project Structure



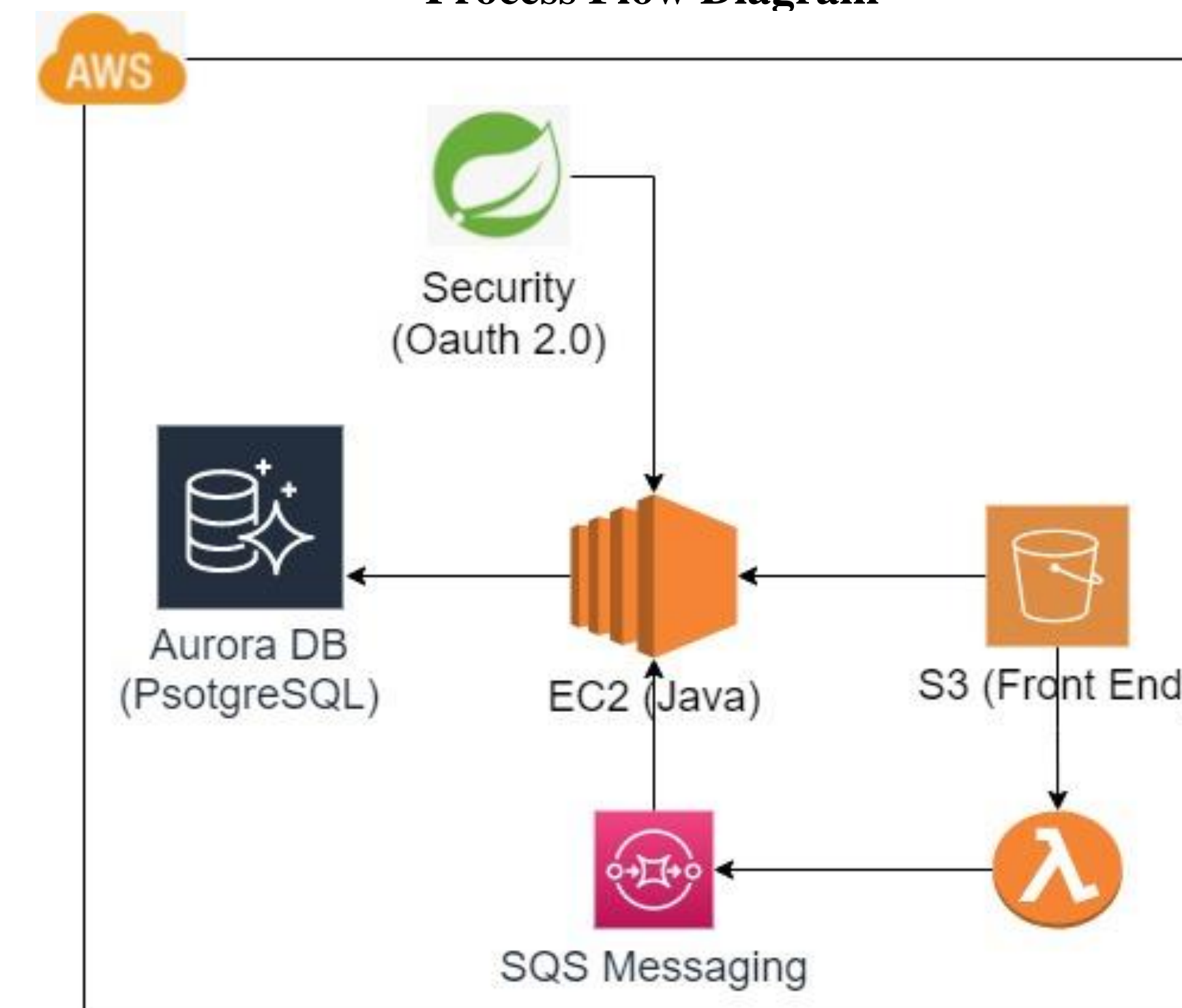
Signadocs Application

Results

As a result for everything discuss on this paper, without minimizing the importance of systems for managing documents in traditional formats, especially those made for paper documents, it becomes clear that one of the fields of science of information and library science that technologies have most directly influenced in recent times is in the management of electronic documents.[6] Thus, the appearance and massification of electronic documents through technologies has allowed: reducing the physical file space, maintaining a single set of information that contains everything that was or is important for the organization, making it possible to quickly locate it by a great diversity of criteria, facilitate the parallel processing of information contained in documents, instead of the user having to wait for someone else to finish with them to consult them, preserve the original documents, eliminating the risks that deterioration of the documents brings. for its use, integrate documentation in work processes, control versions, eliminate uncontrolled copies, distinguish paper in circulation, control access to the file by security levels, eliminate loss of documentation, improve, in general, handling of information that can be decisive for the development of the organization, relate in training by groups and user types and avoid redundancy in documentation. Figure 8 represents how the application's process flow. Figure 9 represents the application's architectural diagram.



Process Flow Diagram



Application Architecture Design

Conclusion

In this project, an application for document management was developed. It is a platform where we can keep track of documents on an efficient digital way. In this application aspects such as security, flexibility, performance, and scalability are addressed to make the best user experience.

Future Work

This project has a huge future scope due to all possible improvements, features and modifications which can be implemented. Currently only a few major functions were implemented, Current user interface is made responsive to support most major web browsers and devices, but it can further be improved when implementing new features. Moreover, for future works, such important functions like supporting additional document extensions and additional automated workflow features.

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