Social BPM

NYU ITP Program

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ACKNOWLEDGEMENT

Any sustained effort by untrained minds in a new work environment requires for culmination, a guiding hand that shows the way. Any project benefits from the contribution of numerous people before it reaches its completion, which can be in the form of technical support or just a word of encouragement. In either case its significance cannot be under-rated. My sincere thanks goes to the members of CITI who has given us a golden chance to work with one of the world's leading global Company, Citibank.

We gratefully acknowledge the efforts of our Professor, Jean-Claude Franchitti. He has been a constant source of inspiration all throughout the course tenure. Next, I would like to thank my Manager, Pierce Currid, who has not only assigned a wonderful and challenging project to us but also has guided and supported us during the entire period. Their constant supervision, constructive criticism and valuable suggestions were instrumental in the successful completion of our project work. It would be unfair not to mention the support we received from the Citi. Naming each one of the individual may not be possible but I thank one and all, who have made this journey such wonderful and joyous.

I gratefully acknowledge the efforts of our Coordinator Nicholas Delauney in giving us valuable inputs and suggestions throughout the training period; he has provided constant support throughout and has made us aware of the various procedures necessary for the successful completion of the project. Our sincere thanks and words of appreciation to him.

NYU

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INTRODUCTION

NYU INFORMATION TECHNOLOGY PROJECTS

This is a capstone course that connects students directly with real-world information technology problems. The goal of this course is to teach the skills needed for success in real world information technology via a combination of classroom lectures and practical experience with large projects that have been specified by local "clients." The typical clients are primarily companies, but can also be government agencies or nonprofit organizations. Each project lasts for the entire semester and is designed to involve the full software project life cycle. Examples of such projects are development of software to solve a business problem, including specifying requirements, writing and testing prototype code, and writing a final report; and evaluation of commercial software to be purchased to address a business problem, including gathering requirements, designing an architecture to connect the new software with existing systems, and assessing the suitability of available software products.

CITI CLIENT INFORMATION

Citi, the leading global financial services company has about 200 million customer accounts in over 100 countries, providing consumers, corporations, governments and institutions with a broad range of financial products and services, including consumer banking and credit, corporate and investment banking, securities brokerage and wealth management. Citi is also one of the largest software development organizations in the world with over 22,000 developers and 5,000+ applications running across all line of businesses. Citibank is one of the first companies to start online services.

PROJECT

BUSINESS OBJECTIVE

Citi Collaborate is an enterprise social networking platform leveraging Jive launched in 2012. Citi Collaborate captures a huge amount of qualitative social data. Social BPM makes this data available to various enterprise applications to improve the business processes modelled in these applications. It will encourage the usage of the Citi Collaborate platform as it will collate the information present across the platform and render the requisite details needed to the users in one easy access portal. A major benefit of social BPM is that it helps eliminate the barrier between BPM decision makers and the users affected by their decisions. As explained by BPM professor, Dr. Michael Zur Muehlen, "If you only focus on streamlining process execution and making it as efficient as possible the social aspect diminishes. But if you consider process discovery, the development of a shared understanding of what your operations look like, and monitoring your process environment, then social plays a big role. Social is all about providing context, a rich environment of data points that a streamlined workflow would be lacking otherwise. The challenge is to make this context useful, both from a social networking perspective and from an unstructured data perspective."

BUSINESS VALUE ACHIEVED

Dialogues can be captured between various stakeholders involved in an enterprise application workflow providing qualitative information to complement the quantitative information already present in enterprise application. Approvers and submitters for artifacts can capture their interaction on Social Network through Social BPM. Also approvers will have all the necessary information available at one place to help drive their approval decisions. Identify inefficiencies in the business workflow and make improvements.

PROJECT SCOPE

The Social BPM application is designed in such a way that it can be easily on boarded into any application that needs the functionality: calls to REST API and embedding HTML5 widgets is all that we require. Using historical data which is captured in Social BPM to provide insights into decision making processes. Social BPM can be integrated with other social applications, this will feed in more data to the Social BPM. Justifications for data input to be captured and supplied to enterprise application. To provides access to business intelligence that would otherwise be hidden in disparate platforms.

IMPLEMENTATION

TECHNICAL OBJECTIVE

There are numerous application in Citi technical space. A social BPM application is required to allow these applications to utilize the data captured in the Citi internal social network, Citi Collaborate. This will enhance and improve the business processes modelled in the applications. The technical objective is to build a solution that would cater to this specific problem using cutting edge technologies so that it could be easily interfaced with the existing systems leveraging the existing infrastructure. Also to build a reusable component/widget that can be used across different systems without having compatibility issues.

APPROACH

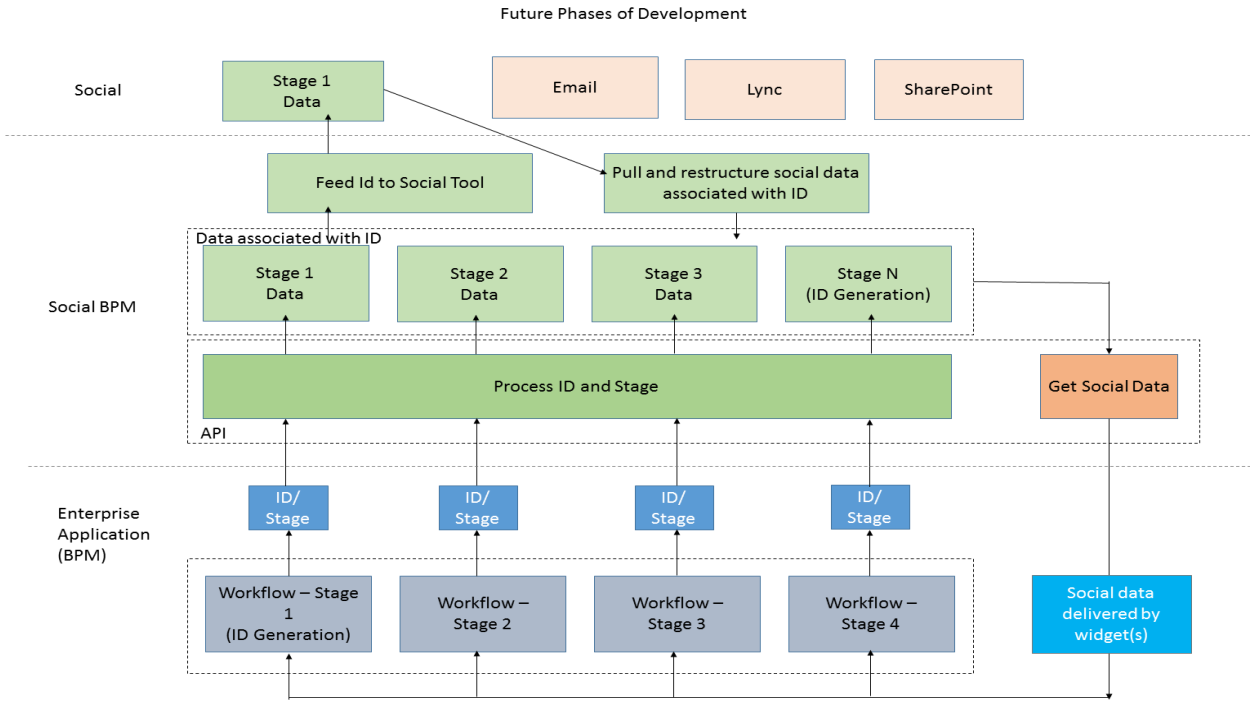
- The data is provided to the Social BPM widget in the form of JSON.
- The widget reads the data and displays it in the required format.
- Users can follow/subscribe to feeds and channels using these widgets.
- When a new reply or comment is posted in the widget users receive chrome notifications.
- The widget is organized into questions and answers format. It has details like the username of the poster, group name, date that it was posted etc.

- It is created using directives from AngularJS and uses CSS for styling.
- The widget is built as a reusable component and can be embedded in any application by just using a JavaScript file and then specifying html tag.

<script type="text/javascript" src="client/src/app/common/nocache/social-bpm-widget.js"></script>

<social-bpm-widget filter-type="NYU"></social-bpm-widget>

TECHNICAL ARCHITECTURE



WORK FLOW

- User initiates new business workflow in enterprise application – e.g. project management too
- ID, workflow stage and user entitlement meta data is sent to the Social BPM API
- The Social BPM application sends the ID and entitlement data to Citi Collaborate

- A widget is used in Citi Collaborate to allow entitled users to 'tag' any content they create or that was created by others with the ID supplied from the enterprise application – e.g. an infrastructure rate card being used to justify the forecast financial costs for hosting a new application
- All tagged content will be pushed, in real-time, to the Social BPM application data store and will be transformed before it is persisted to make it more easily mineable
- HTLM5 widget(s) will be embedded in the enterprise application and these will pull data from Social BPM based on the workflow ID and user entitlements. The widget(s) will allow the user to search and filter the data

TECHNOLOGY STACK

- **HTML5:** Hypertext Markup Language revision 5 (HTML5) is markup language for the structure and presentation of World Wide Web contents. HTML5 supports the traditional HTML and XHTML-style syntax and other new features in its markup, New APIs, XHTML and error handling.

- **JavaScript:** JavaScript (JS) is a lightweight, interpreted, programming language with first-class functions. Most well-known as the scripting language for Web pages, many non-browser environments also use it, such as node.js and Apache CouchDB. JS is a prototype-based, multi-paradigm, dynamic scripting language, supporting object-oriented, imperative, and declarative (e.g. functional programming) styles. Read more about JavaScript.

- **CSS3:** CSS3 is the latest evolution of the Cascading Style Sheets language and aims at extending CSS2.1. It brings a lot of long-awaited novelties, like rounded corners, shadows, gradients, transitions or animations, as well as new layouts like multi-columns, flexible box or grid layouts.

- **MongoDB:** Mongo is an open source schema less database system which is very different from the more popular MySQL. The most considerable differences are that MySQL is written using SQL queries, while MongoDB is focused on BSON (Binary JSON).

- **JQuery:** JQuery is a cross-platform JavaScript library designed to simplify the client-side scripting of HTML. JQuery's syntax is designed to make it easier to navigate a document, select DOM elements, create animations, handle events, and develop Ajax applications. JQuery also provides capabilities for developers to create plug-ins on top of the JavaScript library. This enables developers to create abstractions for low-level interaction and animation, advanced effects and high-level, themeable widgets.

- **Java:** Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere", meaning that compiled Java code can run on all platforms that support Java without the need for recompilation

- **GitHub:** GitHub is a web-based Git repository hosting service. It offers all of the distributed revision control and source code management (SCM) functionality of Git as well as adding its own features. Unlike Git, which is strictly a command-line tool, GitHub provides a Web-based graphical interface and desktop as well as mobile integration. It also provides access control and several collaboration features such as bug tracking, feature requests, task management, and wikis for every project

- **AngularJS:** AngularJS is a complete JavaScript-based open-source front-end web application framework. It aims to simplify both the development and the testing of applications by providing a framework for client-side model–view–controller (MVC) and model–view–viewmodel (MVVM) architectures, along with components commonly used in rich Internet applications.

- **Amazon Web Services:** Amazon Web Services offers reliable, scalable, and inexpensive cloud computing services. AWS now has more than 70 services that span a wide range including compute, storage, networking, database, analytics, application services, deployment, management, mobile, developer tools and tools for the Internet of things.

DEMO

- Data is provided to the Social BPM widget in the form of JSON.
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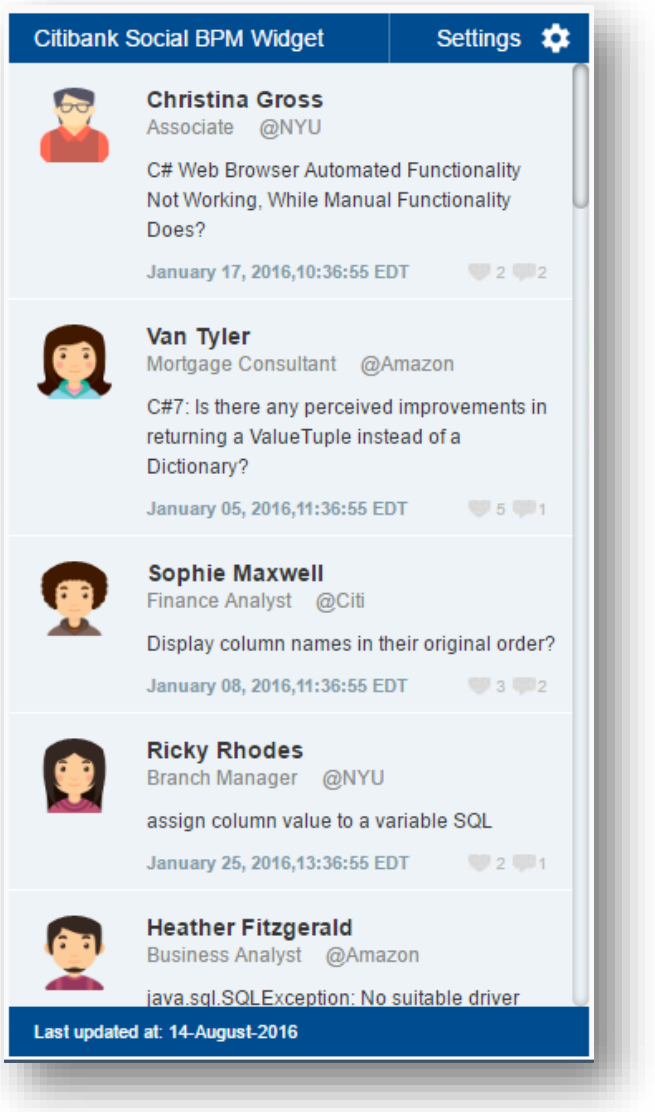
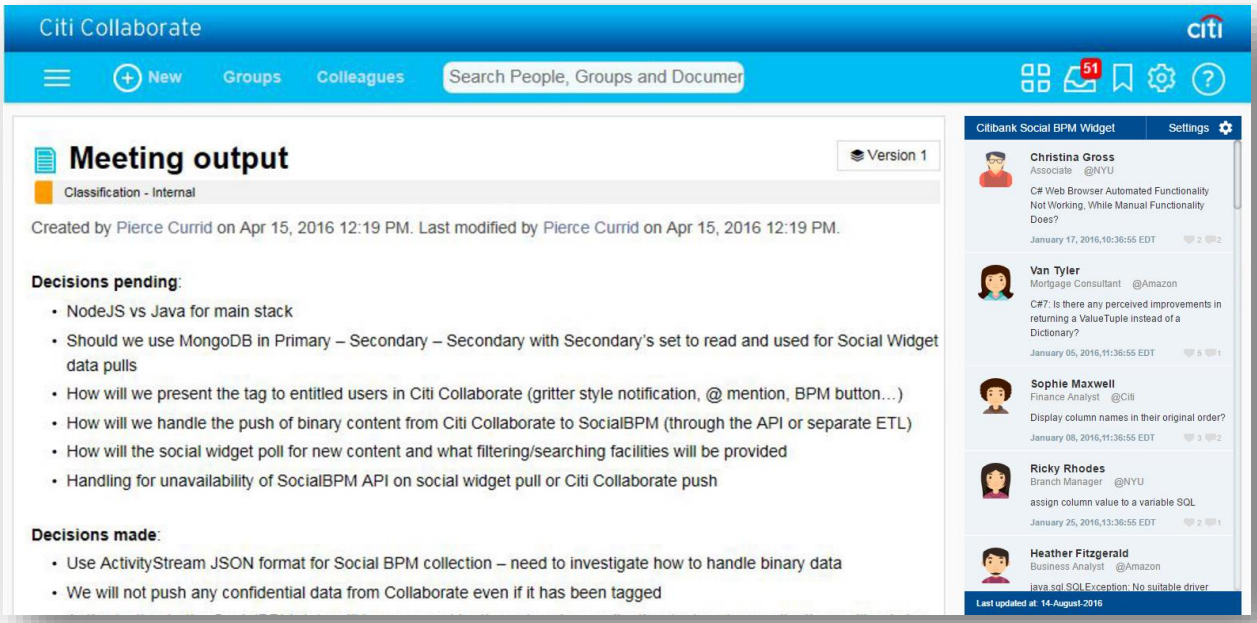
- Users can follow/subscribe to feeds and channels using this widget.
- Users receive notifications whenever there is a new comment or reply in the widget.
- The widget is organized into questions and answers format.
- It is built as a reusable component and can be embedded into any application.




Citi Collaborate
citi
New
Groups
Colleagues
Search People, Groups and Documer
51
Meeting output
Version 1
Classification - Internal
Created by Pierce Currid on Apr 15, 2016 12:19 PM. Last modified by Pierce Currid on Apr 15, 2016 12:19 PM.
Decisions pending:
NodeJS vs Java for main stack
Should we use MongoDB in Primary – Secondary – Secondary with Secondary's set to read and used for Social Widget data pulls
How will we present the tag to entitled users in Citi Collaborate (gritter style notification, @ mention, BPM button…)
How will we handle the push of binary content from Citi Collaborate to SocialBPM (through the API or separate ETL)
How will the social widget poll for new content and what filtering/searching facilities will be provided
Handling for unavailability of SocialBPM API on social widget pull or Citi Collaborate push
Decisions made:
Use ActivityStream JSON format for Social BPM collection – need to investigate how to handle binary data
We will not push any confidential data from Collaborate even if it has been tagged
Citibank Social BPM Widget
Settings
Christina Gross
Associate @NYU
C# Web Browser Automated Functionality Not Working, While Manual Functionality Does?
January 17, 2016,10:36:55 EDT
Van Tyler
Mortgage Consultant @Amazon
C#7: Is there any perceived improvements in returning a ValueTuple instead of a Dictionary?
January 05, 2016,11:36:55 EDT
Sophie Maxwell
Finance Analyst @Citi
Display column names in their original order?
January 08, 2016,11:36:55 EDT
Ricky Rhodes
Branch Manager @NYU
assign column value to a variable SQL
January 25, 2016,13:36:55 EDT
Heather Fitzgerald
Business Analyst @Amazon
java.sql.SQLException: No suitable driver
Last updated at: 14-August-2016

CONCLUSION

MOVING FORWARD

- Easily on boarded into any application that needs the functionality.
- Using advanced analytical tools, mine the data captured in Social BPM to provide insights
- Further integrated with Lync (Skype), Exchange (EWS), SharePoint and other social applications.
- Leveraging Artificial Intelligence and Machine Learning to make decisions with the data captured
- Supports more-effective process execution through the use of social software tools that augment human actions to better mirror the way work is performed, while also providing visibility to this work.
- Acts as an important pillar to build up an untethered social enterprise, to enforce culture of innovation, enhance cross-functional communication & iteration, re-tool enterprise architecture, and improve customer experience management.

CHALLENGES AND LESSONS LEARNED

- Unavailability of infrastructure and data.
- Learned and explored new technologies
- Exposure to corporate experience
- Leveraged the technical experience and insights