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INNOVATIVE FEEDBACK SYSTEM BASED ON IBM BLUEMIX CLOUD SERVICE

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ABSTRACT

Getting the right feedback at right time is most important for any organization or an institution. Getting the feedback from the users will help an organization or institution to provide better services to the users or students. Ongoing interaction with users can improve the efficiency of an organization and enable them to provide better service to the users. Until now, several feedback systems are in use which are mostly manual. We propose an efficient feedback system using cloud based computing to generate the report of the faculty performance. In the proposed system all the activities will be done by the use of cloud application Platform as a Service, through the use of IBM Bluemix.

Keywords: Android, Bluemix, Cloud Computing, Paas (Platform As A Services)

I INTRODUCTION

Cloud Computing[1] is a popular technology in which internet and central remote servers are used to store and maintain the data, applications. Cloud computing allows people to use applications without installation of any specialized software and access the required computing facilities from anywhere via internet. By using Cloud computing we can achieve much more efficient computing power by centralizing data storage, processing and bandwidth.

Cloud can be available as various services Software as a service (SaaS), Platform as a service (PaaS), Infrastructure as a service (IaaS)

1.1 Services

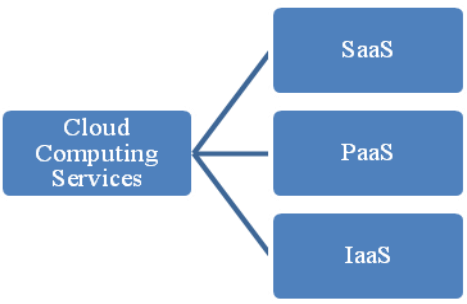

Fig.1: Cloud Computing Services

Software as a service (SaaS):

Software as a service is one type of cloud service in which an application software is installed and manage in the cloud. The users of the cloud no need to manage the platform and infrastructure of cloud. Software as a service clouds are owned and maintained by respective cloud providers and users can connect to it via the Internet.

The advantages of SaaS,

- User can sign up and rapidly start using innovative business apps
- Reducing overall budget, increase storage capacity
- Apps and data are accessible from any connected computer
- In case of computer breaks No data is lost

Platform as a service (PaaS):

Cloud providers will provides a cloud based infrastructure with complete support to development and deployment cloud based applications. The user is benefited as produce an application without the much more expenses of buying and complexity of managing the underlying hardware, software, and deployment.

The advantages of PaaS,

- Provision to Develop applications in a faster way
- Reduce the time span required to deploy new web applications in to the cloud
- Simplifies the development work with middleware as a service

Infrastructure as a service (IaaS):

The service in which consumer gets the resources required for computing like servers, networking, data storage and other important processing capabilities. The consumer can install and execute software with the control over the platform and deployed application.

The benefits of IaaS,

- Need not manage cloud platform
- No investment for the hardware required
- Infrastructure scalable to support dynamic workloads

1.2. Deployment model

Cloud can be deployed as public, private, and hybrid [2].

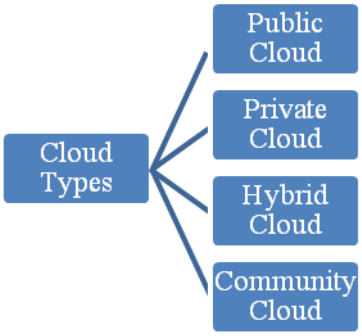

Fig.2: Cloud Computing Types

Public Cloud:

Public clouds are provided and maintained by the private or government cloud service providers that offer open access to the general public. The user can use Public cloud services like hardware, software, or infrastructure without purchase them. These clouds are less secure compared with other models

Private Cloud:

The cloud is available for solely for a single organization. It can be managed, worked internally or by a third party or combination of them. Private Clouds are significantly more secure than that of the public cloud due to less exposure to outside community. Private clouds can provide the advantage of security, while giving more control of resources.

Hybrid Cloud:

A hybrid cloud is a combined form of private cloud and public cloud services. This can be formed by managing the workloads across data centers, private clods and public clouds. The hybrid cloud is brought by standardized technology.

Community Cloud:

The cloud hosting in which the setup is mutually shared between many organizations that belong to a particular community, i.e. banks and trading firms, is called as Community Cloud. Several organizations that are belong to a specific group which has similar concern will use the tenant setup of Community Cloud. The members of this community generally share similar privacy, performance and security concerns.

II METHODOLOGY USED

2.1. IBM Bluemix

IBM developed a cloud called Bluemix[5] to provide Platform as a service which supports several programming Languages and services such as integrated DevOps to develop, execute, install and maintain applications online. Bluemix provides more control to application developers because of its Platform as a Service (PaaS) offering, and also provides pre-built Mobile Backend as a Service (MBaaS) capabilities. Services are provided with the aim to simplify delivery of an application that is ready to use as soon as possible and capabilities are hosted to enable internal scale development. Bluemix runs on Soft Layer infrastructure and is based on Cloud Foundry

open technology. IBM Bluemix is a cloud platform as a service (PaaS) developed by IBM. It supports several programming languages and services as well as integrated DevOps to build, run, deploy and manage applications on the cloud. Bluemix is based on Cloud Foundry open technology and runs on SoftLayer infrastructure. Bluemix supports several programming languages including Java, Python and Android.

2.1.1. Bluemix Features:

- We can host our projects as Git Hosting
- We Connect with our GitHub repository
- We can develop and deploy in one place in your way
- Provides simple user interface for starting a project quickly
- No need to install any specialized software
- Provides Integrated source code editor
- We can update a running app automatically with Bluemix Live Sync
- We can manage Built-in source code
- We can know the status of the projects through Dashboard charts
- Available all the time

2.1.2. Bluemix Architecture

Below figure shows the high-level Bluemix architecture [6]. And brief introduction about each part is provided.

- Browser based user interface – used by developers and users to interact with Bluemix infrastructure
- Cloud Foundry – Command line interface, called cf, can be used to deploy web applications.
- Virtual machine – that host each application deployed by Bluemix by using Soft Layer.
- Bluemix services – used to assemble the application easily
- Networking hardware – routers, networking protocols are used for Bluemix and user communication

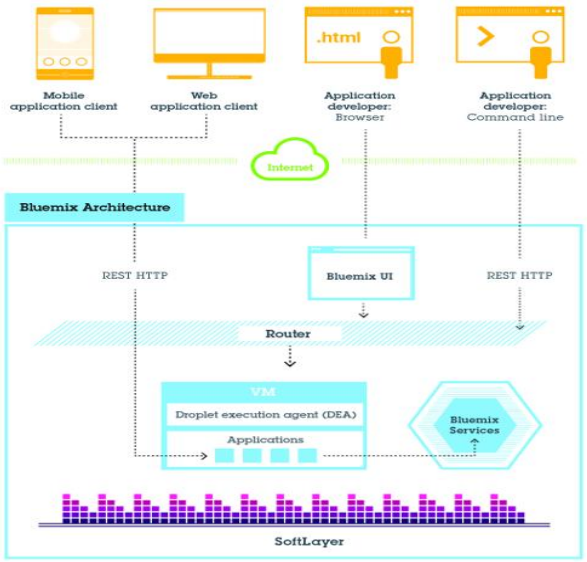

Fig.3: Bluemix Architecture

2.1.3. Application Deployment into Bluemix

We can deploy our own developed applications into the Bluemix through various ways. One of the easiest ways is the use of command line interface called Cloud Foundry tool. Procedure is explained below,

Step 1: Install the Cloud Foundry command line interfaces.

Step 2: Extract the package to a new directory to set up your development environment.

Step 3: Change to your new directory,

$ cd *your_new_directory*

Step 4: Connect to IBM Bluemix,

$ bluemix api https://api.ng.bluemix.net

Step 5: Log in to Bluemix,

$ bluemix login -u *username* -o *org_name* -s *space_name*

Step 6: Deploy your app to Bluemix,

$ cf push *app_name*

Step 7: Access your app by entering the following URL into your browser, *host*.mybluemix.net

2.2. Android

Android provides a rich application framework that allows you to build innovative apps and games for mobile devices in a Java language environment.

Android App development uses the development platform call Android Development Toolkit (ADT). Android Development Tools (ADT) is a plug-in for the Eclipse IDE that is designed to give you a powerful, integrated environment in which to build Android applications. ADT extends the capabilities of Eclipse to let you quickly set up new Android projects, create an application UI, add components based on the Android Framework API, debug your applications using the Android SDK tools, and even export signed (or unsigned) APKs in order to distribute your application. Developing in Eclipse with ADT is highly recommended and is the fastest way to get started. With the guided project setup it provides, as well as tools integration, custom XML editors, and debug output pane, ADT gives you an incredible boost in developing Android applications.

III PROPOSED DESIGN

The proposed system is a Bluemix based android mobile application [9] for feedback collection. This system enables the faculty to easily get feedback from their students. The user can login to the system with a valid ID and password, fills the feedback form and submit the feedback to the system. So, only valid users can access it from anywhere. The administrator can later analyze the feedback. This is a cloud based system. So there is no need for installing any additional software on the client systems. The system issues a feedback form for users. The user answers the question and submits this feedback. This is very effective, fast and cost effective method for collecting the feedback.

3.1. System Overview

In this we are proposing two modules. They are Administrator module and Student module

Administrator module:

Administrator is the person, who is having the responsibility to manage all the records. Administrator can login to the system with a valid ID and password.

Student module:

The student is a person who satisfies the constraint of 75% attendance.

The following figure shows the architectural view of the proposed system. The description of the system is as follows:

3.1.1. System Architecture

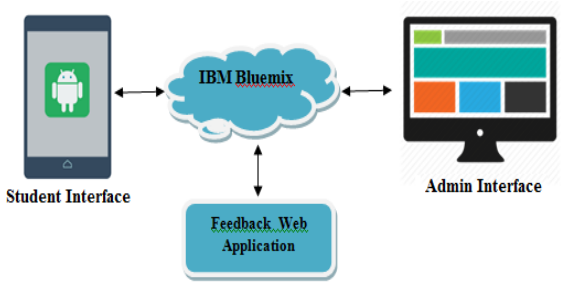

Fig.4: System Architecture

The cloud based feedback web application is deployed in the Bluemix. The student should install the android app in his mobile phone and login. After login the student can give the feedback through the interface displayed to him. Once he completed submission it will be redirected to the app which is deployed in the Bluemix and stored in the database. The Administrator can login into the system through the web browser interface and then the web app which is already deployed in the Bluemix to check the feedback report.

IV PSUEDO CODE

Psuedo code for login page,

```
StrictMode.ThreadPolicy policy = new StrictMode.ThreadPolicy.Builder().permitAll().build();
StrictMode.setThreadPolicy(policy);
btn.setOnClickListener(new View.OnClickListener(){
public void onClick(View view) {
try{
ArrayList<BasicNameValuePair>namevaluepair=new ArrayList<BasicNameValuePair>();
namevaluepair.add(new BasicNameValuePair("user", user=et1.getText().toString()));
namevaluepair.add(new BasicNameValuePair("pass", pass=et2.getText().toString()));
HttpClient client=new DefaultHttpClient();
HttpPost post=new HttpPost("http://10.0.2.2:8080/feed/alogin.jsp");
post.setEntity(new UrlEncodedFormEntity(namevaluepair));
```

HttpResponse response=client.execute(post);

HttpEntity entity=response.getEntity();

InputStream in=entity.getContent(); }

V SCREENS

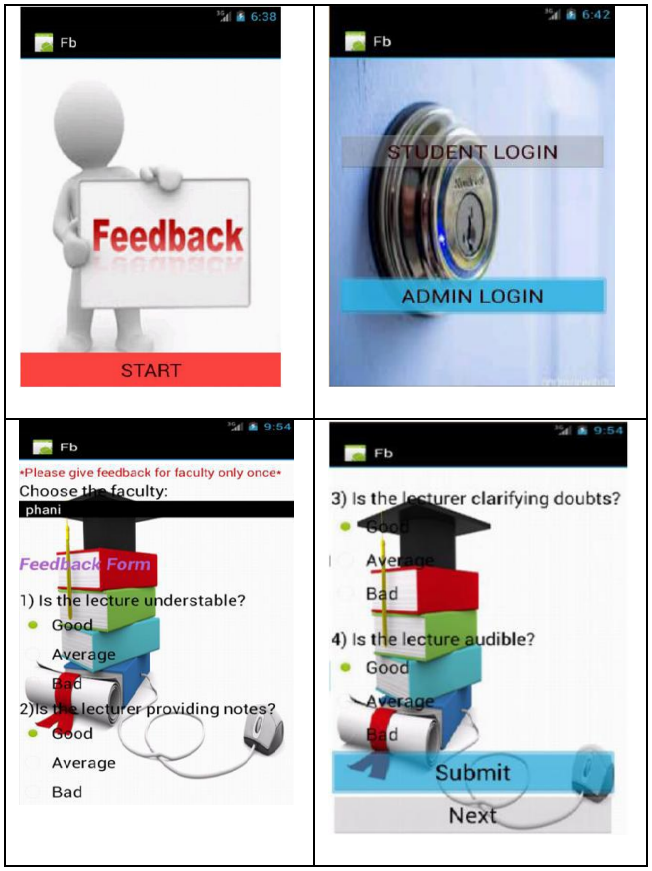

Fig.5: Screens of Android Application

VI CONCLUSION

In this paper we discussed and proposed an efficient feedback system using cloud based computing to generate the report of the faculty performance of an institution. In the proposed system all the activities are deployed in IBM Bluemix. IBM Bluemix can be used for developing different domain applications like android, iOS, web, etc. in this paper we considered the Bluemix service as Platform as a Service. The proposed feedback system will help the administrators of the educational institution to get the feedback for their faculty performance in easy and efficient way.

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