

# Multi-Cloud Performance and Workflow Management

J Jayashree<sup>1</sup> . J Vijayashree<sup>1</sup> . N Ch S N Iyengar<sup>2</sup> . Syed Muzamil Basha<sup>3</sup>

<sup>1</sup>School of Computer Science and Engineering  
Vellore Institute of Technology, Vellore, Tamilnadu, India.

<sup>2</sup>Department of Information Technology  
Sreenidhi Institute of Science & Technology, Hyderabad, India.

<sup>3</sup>School of Computer Science and Engineering  
REVA University, Bengaluru, India.

Received: 08 October 2022 / Revised: 28 October 2022 / Accepted: 03 December 2022

©Milestone Research Publications, Part of CLOCKSS archiving

**Abstract** – Cloud Computing could be a new delivery model for IT services supported net protocols. It usually involves provisioning of dynamically climbable and sometimes virtualized resources at the infrastructure, platform and software system levels. It addresses completely different fundamentals like virtualization, measurability, ability, quality of service and failover mechanism. Cloud atmosphere differs from ancient environments on the very fact that it is massively climbable, is encapsulated as associate abstract entity that delivers completely different levels of services to customers outside the Cloud, is driven by economies of scale, is dynamically organized (via virtualization or different approaches) and is delivered on demand. Among different models, cloud environments are public, non-public or hybrid. A public cloud (a.k.a. external cloud) could be a cloud that gives cloud resources and services to the general public. a personal cloud (a.k.a. internal cloud) is associate enterprise in hand or hired cloud. In general, a hybrid cloud could be a composition of 2 or additional clouds of various models. Nonetheless, we define a hybrid cloud as a composition of 1 public cloud and one non-public cloud. Such a cloud is associate atmosphere during which associate enterprise has its own non-public cloud that gives and manages some internal resources and solely uses external resources provided by the general public cloud once required.

**Index Terms** – Cloud, Quality of service, Interface, Optimization

## I. INTRODUCTION

The end of this decade is marked by a paradigm shift of the commercial data technology towards a subscription based mostly or pay-per-use service business model referred to as cloud computing. This paradigm provides users with an extended list of benefits, like provision computing capabilities; broad, heterogeneous network access; resource pooling and fast snap with measured services. Vast amounts of information being retrieved from geographically distributed data sources, and non-localized data-handling necessities, produce such a modification in technological additionally as business model. One among the outstanding services offered in cloud computing is that the storage of the information. This service doesn't solely provides flexibility and measurability for the information storage, it additionally give customers

with the benefit of paying just for the number of knowledge they have to store for a selected amount of your time, with none issues for economical storage mechanisms and maintainability problems with massive amounts of knowledge storage

## II. LITERATURE REVIEW

Computing systems have become progressively virtual in [1]. we have a tendency to come back from a world wherever applications were entirely developed by organizations for his or her own use, probably exploiting parts and/or platforms developed by third parties, however in the main deployed and dead on the organizations own IT facilities. We examined the conception of security as a dimension of Quality of Service in distributed systems [2]. Implicit to the conception of Quality of Service is that the notion of alternative or variation. The use of cloud computing [3] has enlarged chop-chop in several organizations. Cloud computing provides several advantages in terms of low price and accessibility of knowledge. making certain the protection of cloud computing may be a major think about the cloud computing atmosphere, as users usually store sensitive info with cloud storage suppliers however these suppliers is also untrusted.

Storing and managing of all Files within the single cloud. The institution of enterprises systems exploitation the cloud platform has bit by bit become well-liked in recent decades. Additionally, in typical automatic data processing system, users square measure needed to take a position in dedicated software system and hardware whereas cloud computing delivers the software system and hardware resources in an exceedingly pay-per-use manner. This feature significantly reduces the value of maintenance and preparation. Cloud computing is obtainable exploitation 3 service delivery models, i.e., Platform as a Service (PaaS), software as a Service (SaaS), and IaaS. In single the performance of the system won't be economical and can be of low speed. The dependableness of the applying is not sensible.

## III. PROPOSED WORK

The Service capacities are mostly regarded to be unlimited in cloud computing, which may be used at any time. However, from the CSP's perspective, service capacities aren't unlimited. On the market service capacities modification with workloads, i.e., they can't satisfy user's requests at any time once a cloud service is shared by multiple tasks. Just some on the market time slots square measure provided for brand new coming back users by CSPs in terms of their remaining capacities. As an example, every activity in has completely different candidate services with numerous execution times, prices and on the market time slots. For activity four, there square measure 2 candidate services with completely different workloads. Though there square measure several on the market time slots, not all of the meet necessities of activities of advancement instances.

We give a completely unique joint performance and security driven resource allocation approach that resolves the gear "frictions". Our approach involves 3 main analysis thrusts:

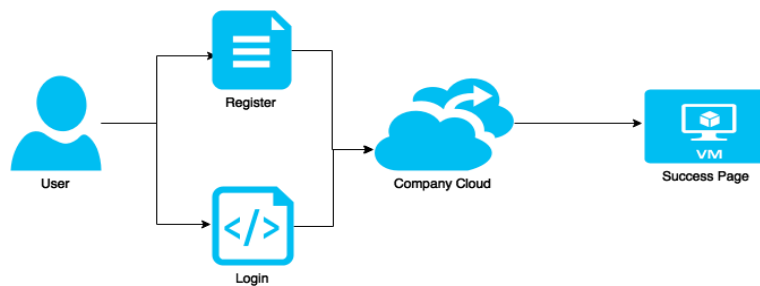
- (i) end-to-end security system,
- (ii) security-posture alignment, and
- (iii) united multi-cloud resource allocation optimisation that leverage non-public cloud (local) and remote (public and community) cloud resources.

Our approach novelty is within the formal definition of SSspecs of a data-intensive application for various stages of its lifecycle utilizing resources across united domains. For this, we tend to extend the National Institute of Standards and Technology (NIST) SP-800E tips to outline specific security classes to form a proper SSspecs organization that's intuitive and comprehensive.

**Module Description**

**User Interface Design**

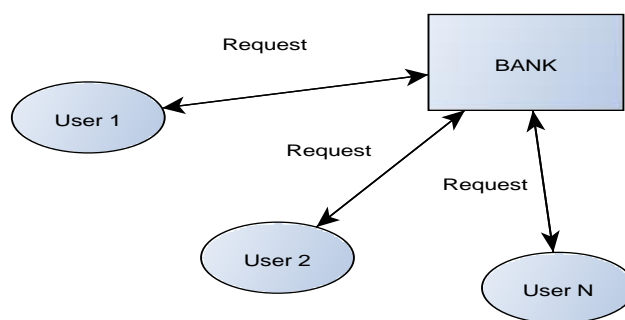
To connect with server user must give their username and password then only they will be able to connect to the server. If the user already exists then he can directly login into the server else user must register their details such as username, password and Email id, into the server. Server creates login account for all the users to cope up with upload and download rate. Name will be set as user id. Login can be used usually to enter a specific page.



**FIG. 1: USER INTERFACE**

**Requesting File**

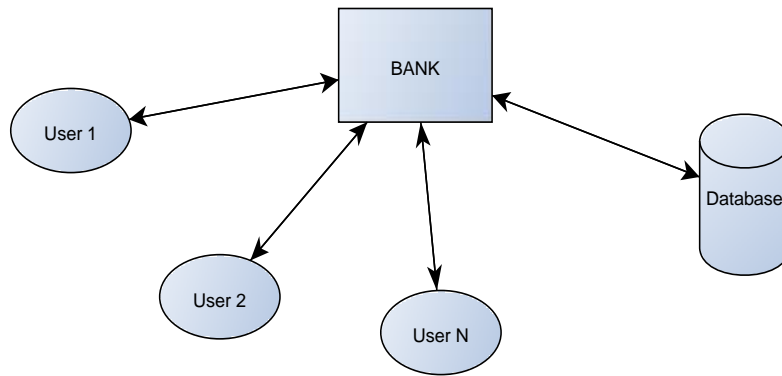
If the users access the same server, then the server uses the time scheduling algorithm to serve the user. There are multiple number of users available to access the server.



**FIG. 2: USER REQUEST**

**Requesting/Response file:**

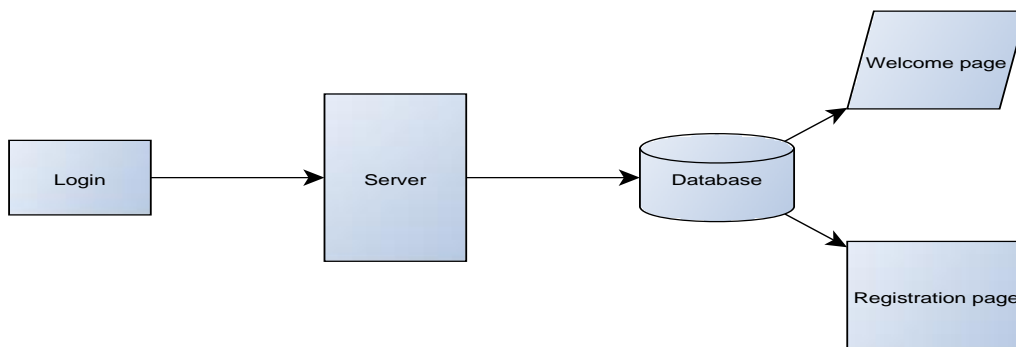
Requesting a file means as you are not owner of the file but you need to read or download the file that is possible only by admin approval. The person who needs the file must request file admin for the tokens once the tokens have been given by the admin the person will be able to read/view the file with the token otherwise the person can't able to get the file



**FIG. 3: RESPONSE FILE**

**Admin login**

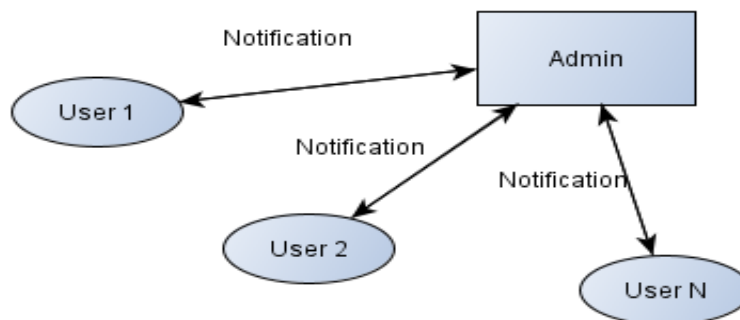
To connect with user, admin must give their username and password then only they will be able to connect the user. If the admin already exists then he can directly login into the server else admin must register their details such as username, password and Email id, into the server. Server will create the account for the admin to maintain upload and download rate. Name will be set as admin id. . Login is used frequently to enter a specific page.



**FIG. 4: ADMIN LOGIN**

**Receive notification**

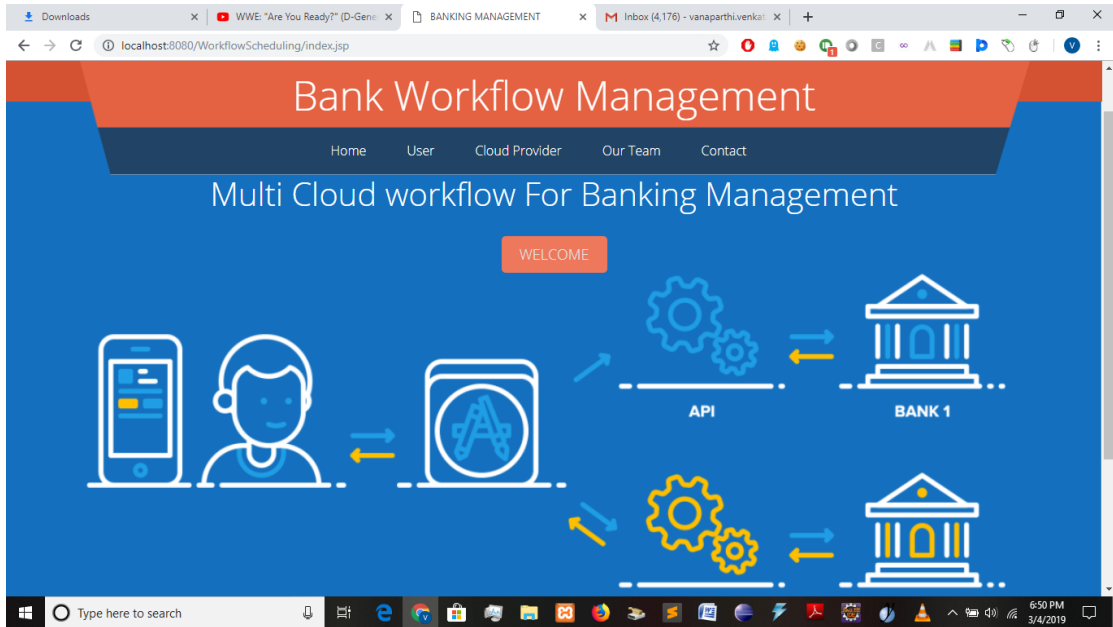
After receiving the request from the users, the admin is responsible to give the access to the users. But n numbers of users access the same server at a time. Hence to avoid the systems crash we follow the time scheduling algorithm. Finally the notification is sent to the users.



**FIG. 5: ACCESS TO THE USERS**

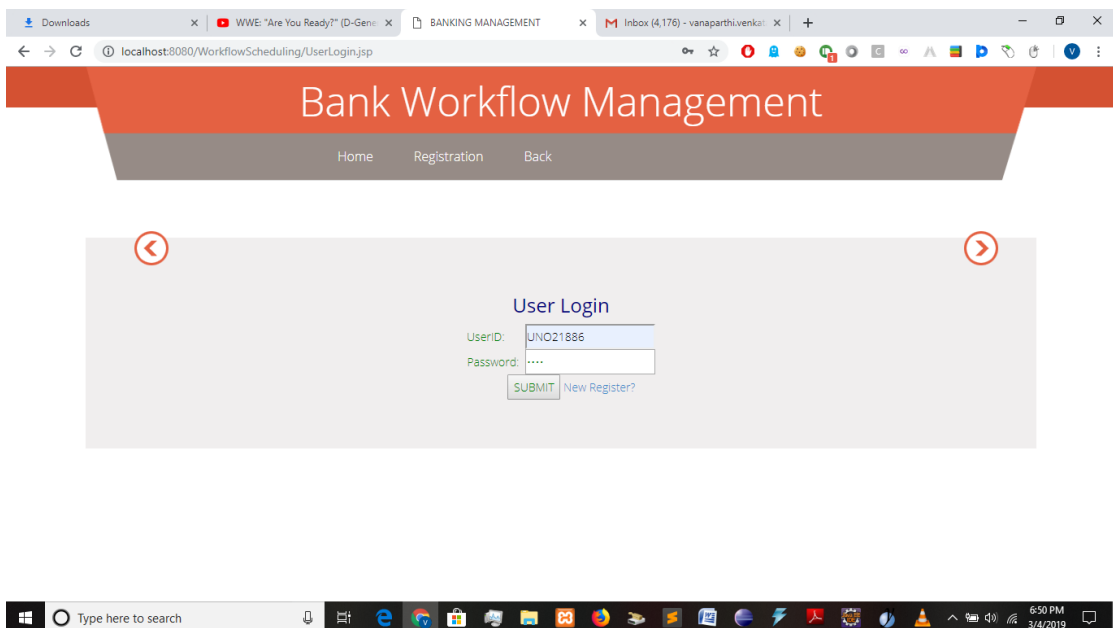
#### IV. RESULTS & DISCUSSION

The home page of the online bank which contains login page for the users, authenticator, and administrators is displayed in figure 6.



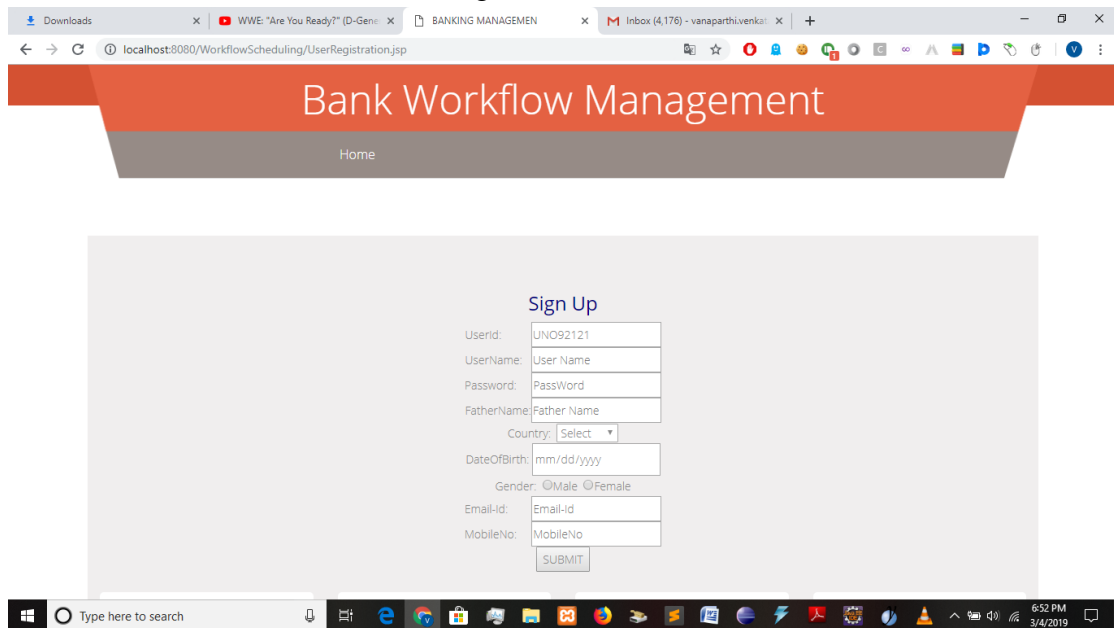
**FIG. 6: HOME PAGE**

Users are provided with the login page, when the credentials are entered properly, it will be directed to the success page as shown in figure 7.



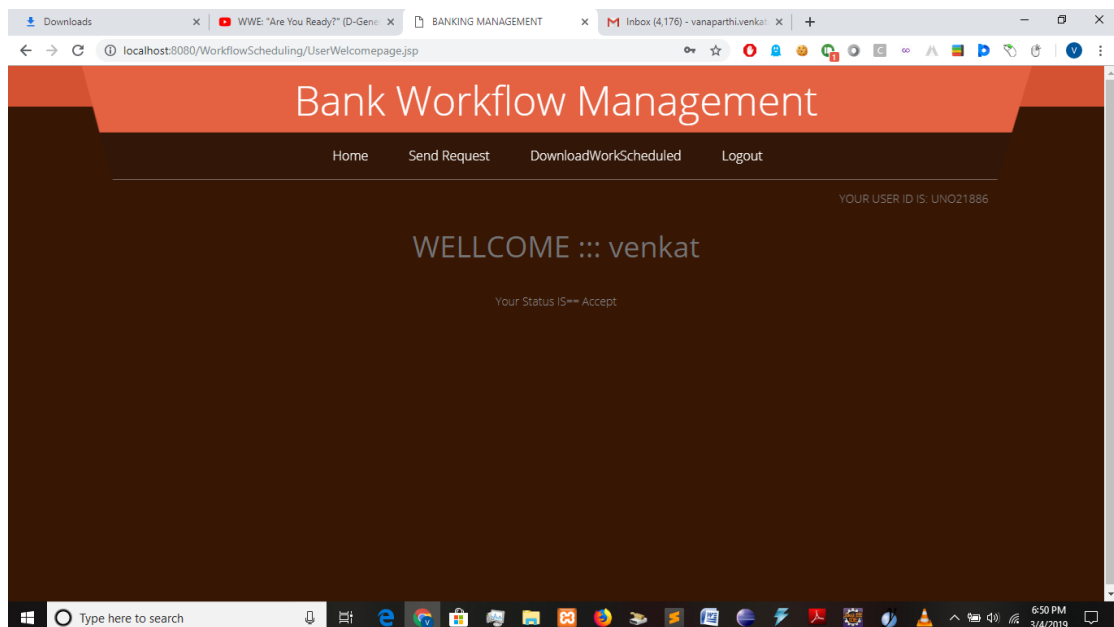
**FIG. 7: LOGIN PAGE**

Using figure 8, new users can open their account by filling the required credentials, and will be waiting till the administrator accepts the request. Once the request is accepted by the administrator, new user will become existing user.



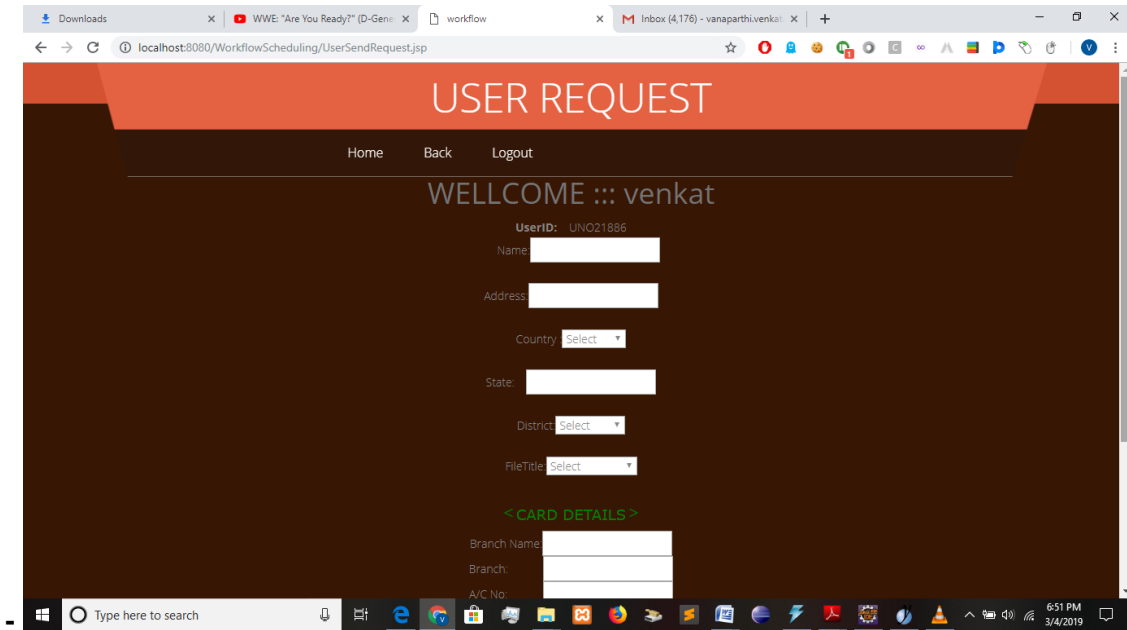
**FIG. 8: ACCOUNT OPENING FORM**

After successful authentication, users will be redirected to the home page in figure 9. Here the users are provided with the functionalities of downloading certain information.



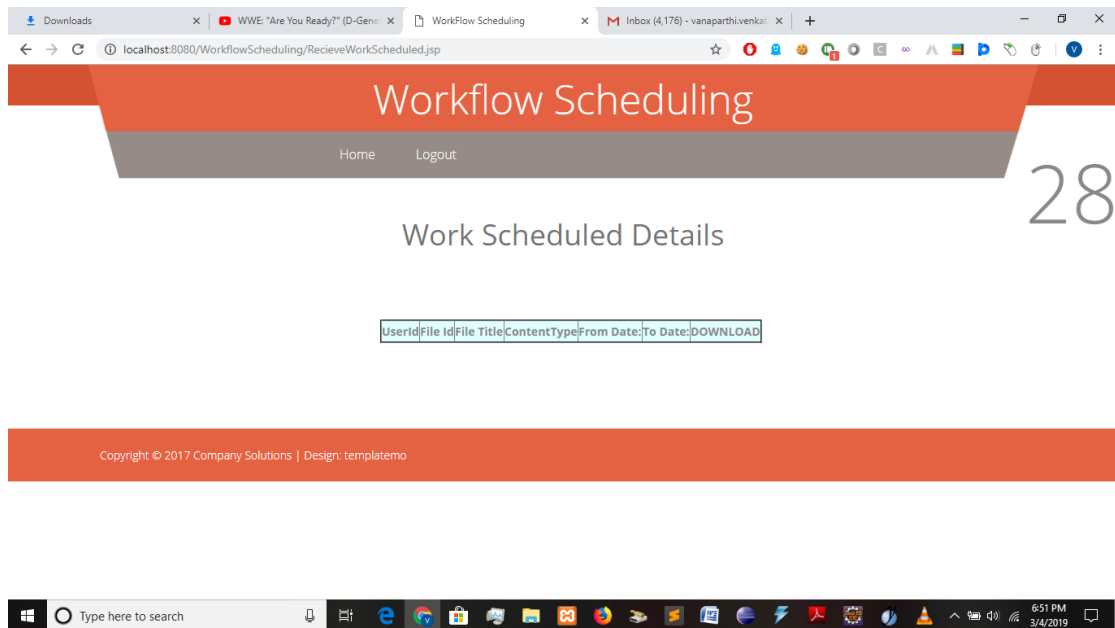
**FIG. 9: HOME PAGE DISPLAYING FUNCTIONALITY OF DOWNLOAD**

The user can send request for the required details like (bank accno, acc balance) etc as shown in figure 10.



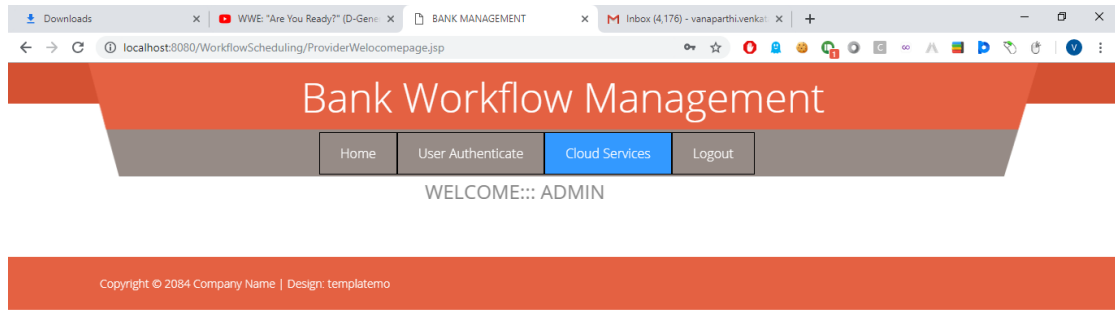
**FIG. 10: USER REQUEST**

After sending the request for particular details, user will be allowed to download particular information, within 30 seconds, and after that the file will be vanished. The workflow scheduling details is given in figure 11.



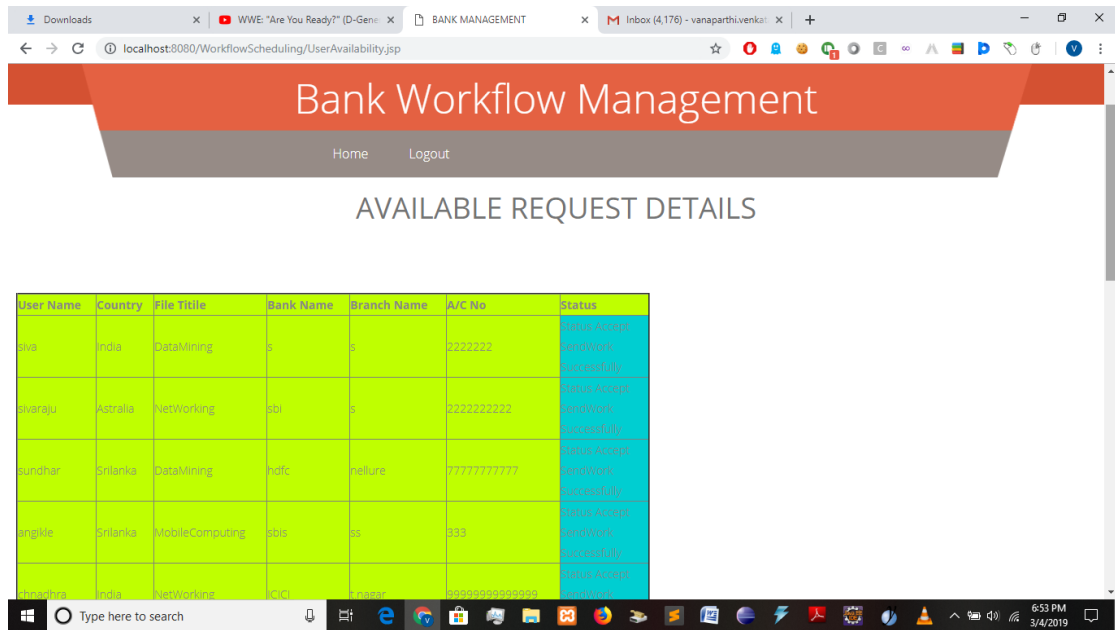
**FIG. 11. WORKFLOW SCHEDULE**

Admin page in figure 12, contain the functionalities accepting the request for the account creation and can monitor cloud services.



**FIG. 12: ADMIN PAGE**

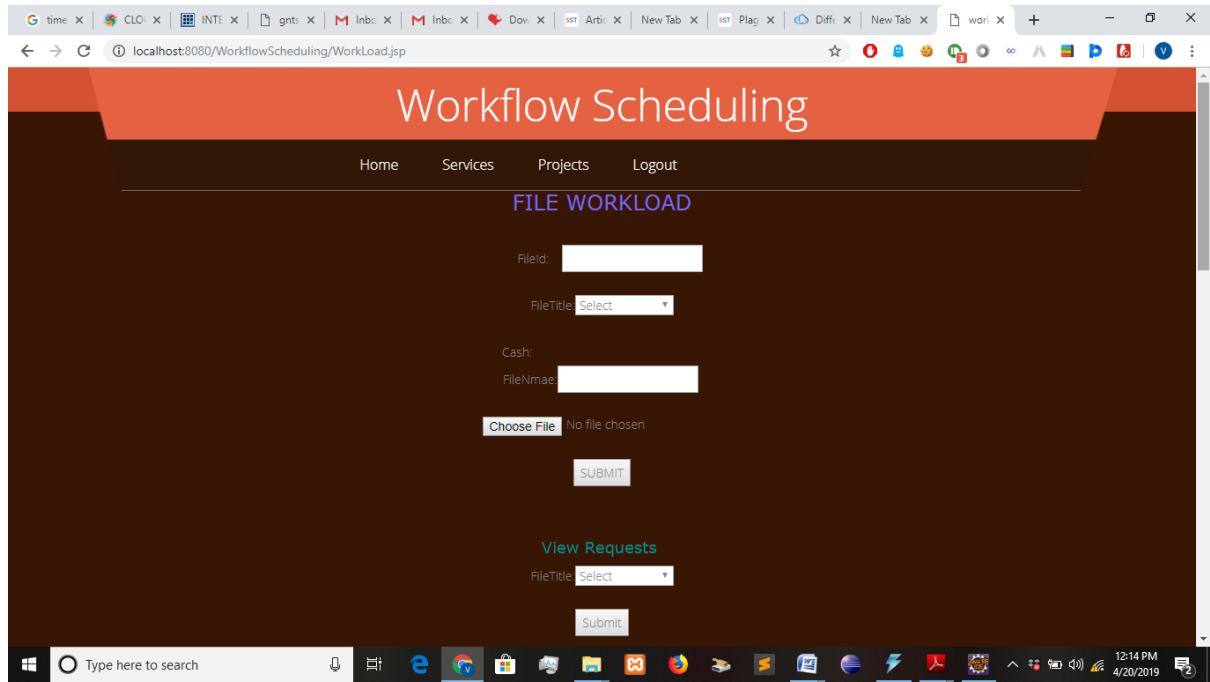
The user can view all the requests of the client details using figure 13.



**FIG. 13: REQUEST DETAILS**

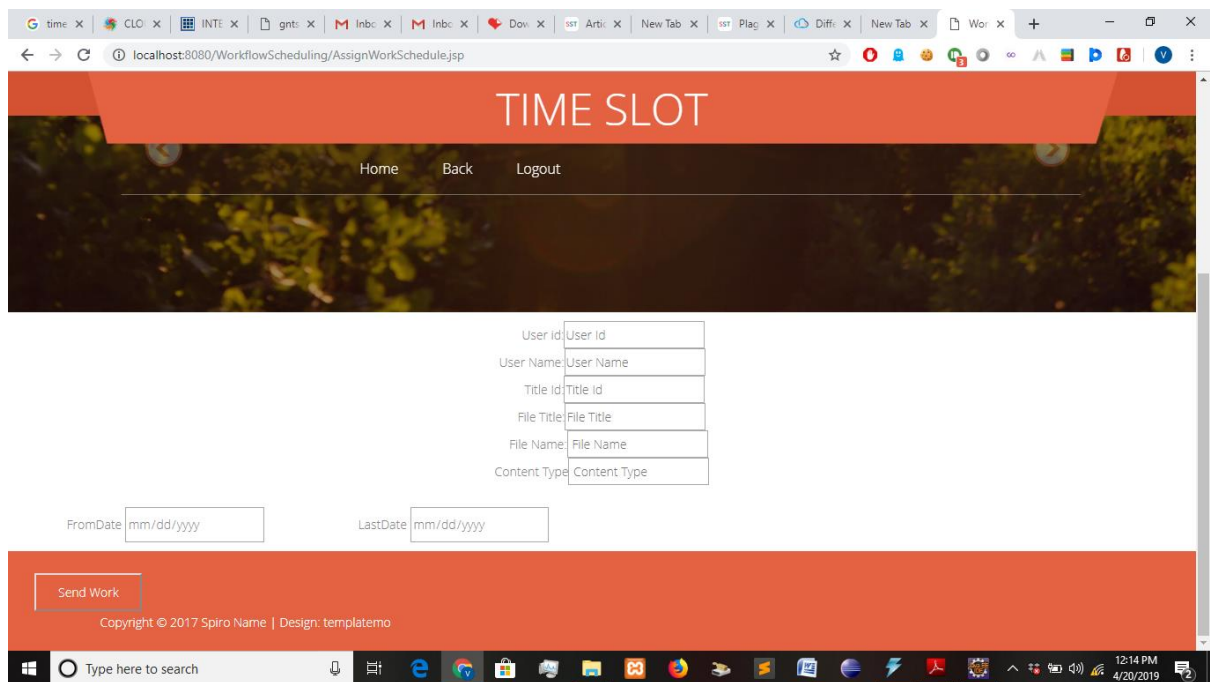
The admin can upload the details for the bank information that is required by the user as shown in figure 14.





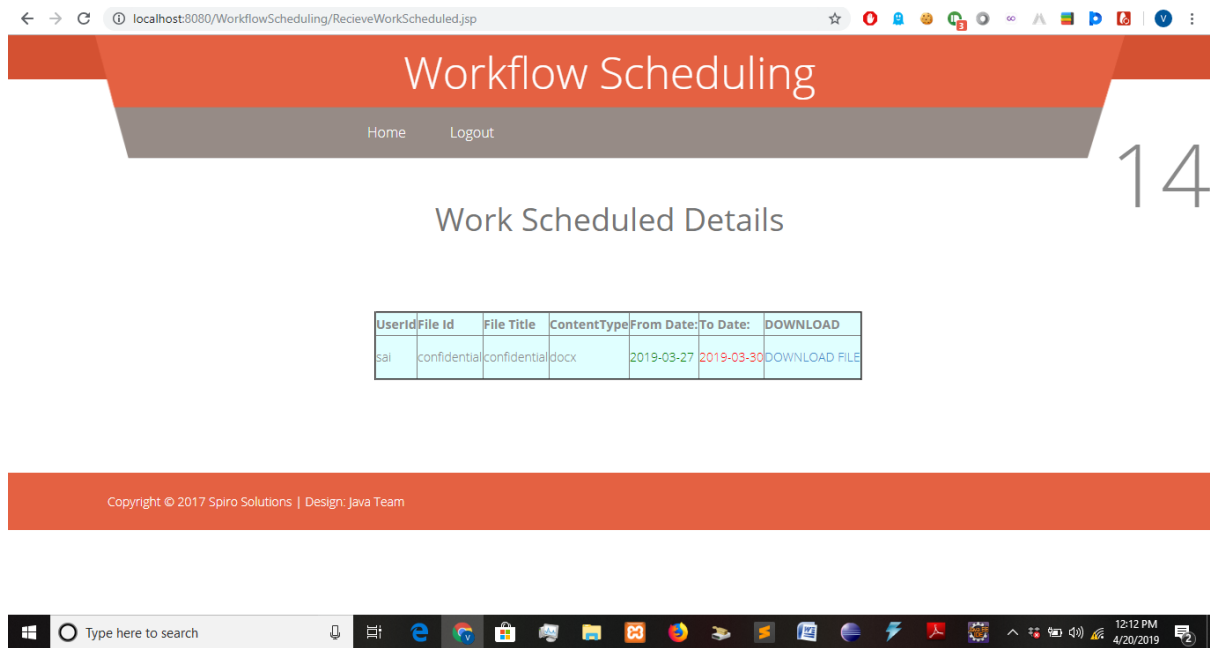
**FIG. 14: FILE WORKLOAD**

Based upon the requirement by the user the time slot that the user chose the details can be sent to the user as shown in figure 15.



**FIG. 15: TIME SLOT**

The user can download the information that he/she has required from the cloud as shown in figure 16.



**FIG. 16: WORK SCHEDULE DETAILS**

## V. CONCLUSION

A web application is created where the user can login or can register by filling the appropriate details; the user will be given a unique id/username by which the user can login to the system. Username is assigned using random function which generates unique ids. After login the user needs to put a request for the authentication. After the admin accepts the request of the user admin provides access to the facilities where the user can request for the data. Then user needs to enter the details of the information that he requires then the admin accepts the request and provides info to user using time scheduling algorithm and there will also be a session time of 30 seconds in which the user needs to download the required information after which the session will be over. We are using java to set the values and using servlets we will get the values that are stored using the MySQL server and checking upon the details in the database the user or the admin can login to the system.

Scheduling will be delineated because the drawback of assignment work to a given set of employees in such the simplest way that some constraints area unit happy. Interval represents the sequence of the process works at every stage, wherever the work assignment to every slot and therefore the associated process time's area unit determined. At every stage within the method, there will be single or multiple units, and once multi units' area unit concerned, time slots area unit outlined for every unit. The programming system will use numerous styles of parameters so as to make a programming policy to optimally complete Associate in nursing execution. Interval programming is being more and more thought to be a vital demand in high performance systems. Time is split into equal intervals referred to as time frames that are any divided into individual slots of fastened length referred to as time slots. Since, employees solely have to be compelled to activate the radio throughout their appointed time slots, that leading to sensible energy potency. By keeping data in multiple clouds, we can prevent the deadlock time of the site and can provide better services for the users without any delays and helps in providing better services by enabling the security feature as well.

## REFERENCES

1. Irvine, C., & Levin, T. (2000). *Quality of security service: an introduction*. NAVAL POSTGRADUATE SCHOOL MONTEREY CA.
2. Lindskog, S. (2005). *Modeling and tuning security from a quality of service perspective* (pp. 0668-0668). Chalmers University of Technology.
3. Dart, E., Rotman, L., Tierney, B., Hester, M., & Zurawski, J. (2013, November). The science dmz: A network design pattern for data-intensive science. In *Proceedings of the International Conference on High Performance Computing, Networking, Storage and Analysis* (pp. 1-10).
4. Force, J. T., & Initiative, T. (2013). Security and privacy controls for federal information systems and organizations. *NIST Special Publication, 800(53)*, 8-13.
5. Agrawal, D., El Abbadi, A., Emekci, F., & Metwally, A. (2009, March). Database management as a service: Challenges and opportunities. In *2009 IEEE 25th International Conference on Data Engineering* (pp. 1709-1716). IEEE.
6. Alzain, M. A., & Pardede, E. (2011, January). Using multi shares for ensuring privacy in database-as-a-service. In *2011 44th Hawaii International Conference on System Sciences* (pp. 1-9). IEEE.
7. Chase, J., & Thummala, V. (2014). A guided tour of SAFE GENI. *Duke University Department of Computer Science Tech Report, CS-2014-002*.
8. Sreedhar, S., Ahmed, S., Flora, P., Hemanth, L. S., Aishwarya, J., & Naik, R. (2021, January). An Improved Approach of Unstructured Text Document Classification Using Predetermined Text Model and Probability Technique. In *Proceedings of the First International Conference on Advanced Scientific Innovation in Science, Engineering and Technology, ICASISSET 2020, 16-17 May 2020, Chennai, India*.
9. Al-Shammari, N. K., Alzamil, A. A., Albadarn, M., Ahmed, S. A., Syed, M. B., Alshammari, A. S., & Gabr, A. M. (2021). Cardiac Stroke Prediction Framework using Hybrid Optimization Algorithm under DNN. *Engineering, Technology & Applied Science Research, 11(4)*, 7436-7441.
10. Yu, T., Zhang, Y., & Lin, K. J. (2007). Efficient algorithms for web services selection with end-to-end qos constraints. *ACM Transactions on the Web (TWEB), 1(1)*, 6-es.
11. Hand, R., Ton, M., & Keller, E. (2013, November). Active security. In *Proceedings of the Twelfth ACM Workshop on Hot Topics in Networks* (pp. 1-7).
12. Ahmed, S. T., Sreedhar Kumar, S., Anusha, B., Bhumika, P., Gunashree, M., & Ishwarya, B. (2018, November). A Generalized Study on Data Mining and Clustering Algorithms. In *International Conference On Computational Vision and Bio Inspired Computing* (pp. 1121-1129). Springer, Cham.