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ROUTINE SCRUTINY OF MULTIMEDIA RECOVERY CONSECUTIVELY RUNNING ON MULTICORES

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ABSTRACT

Online Banking Management System is used to perform transaction, online payment etc. in the web application. To provide more security in this application we use Multimedia Retrieval Benchmark suite. In this user has to select a feature point in an image. If it is correct then only the user can access this application.

1. SCOPE OF THE PROJECT

The scope of the project is to provide a secure system for any kind of web application. In this project, we provide a high level security in banking system. If this application is applied in banking system it will render the unlawful activities useless.

PROBLEMS IN EXISTING SYSTEM

The existing system, is not secured to a great extent. It provide a less security to a customer. It is not too much efficient as compared to proposed system. Security of transaction is a big issue. Your account information might get hacked by unauthorized people over the internet. Password security is a must. After receiving your password do change it and memorize it otherwise your account may be misused by someone who gets to know your password inadvertently.

DISADVANTAGE

- Your account information might get hacked by unauthorized people over the internet.
- Password security is a must. After receiving your password do change it and memorize it otherwise your account may be misused by someone who gets to know your password inadvertently.
- Less customer contact. So it is harder to build personnel relationship with customer.

2. PROPOSED SYSTEM

The main objective of this project is to provide high security. Because it uses image feature point as password. In this system, we provide two type of authentication. One is password authentication and

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another one is image authentication. During registration the user has to provide the user details, password and also he/she has to choose one image which will appear as their image password. In depth the user has to select a particular feature in that image which provides the authentication factor as a password. During login at first the system will check whether the password is correct. Then the user has to select his/her image which is been given during registration from the collection of image that is been displayed. If he/she selects the correct image, then it will ask for the feature point of the image. If the image and the feature point is correctly chosen then only the user can move to the further process.

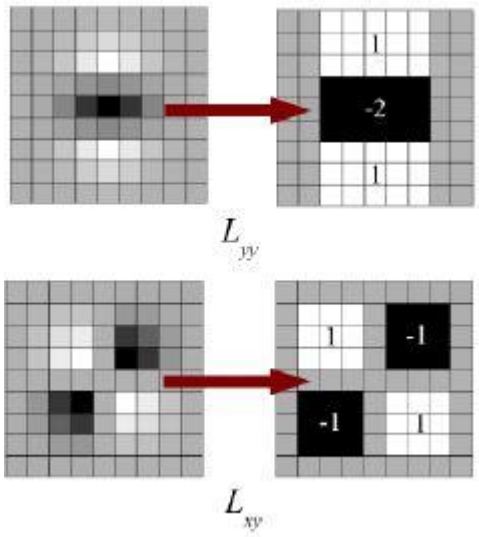
ADVANTAGES

- It is secure and easy to open.
- It is quiet convenient as you can easily pay your bill and transfer funds between accounts etc.
- It is fast and efficient.
- Though internet banking, you can keep an eye on your transaction and account balance all the times. This facility keep your account safe.

3. ALGORITHM DETAILS

The **SURF algorithm system** is used to detect the feature point in an image.This feature point is compared with the feature point in the database.

SURF Algorithm



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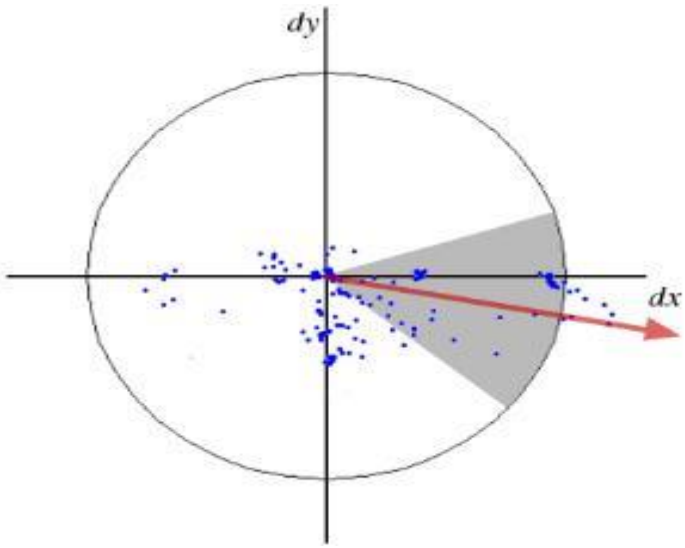
We saw SIFT for keypoint detection and description. But it was comparatively slow and people needed more speeded-up version. In 2006, three people, Bay, H., Tuytelaars, T. and Van Gool, L, published another paper, "SURF: Speeded Up Robust Features" which introduced a new algorithm called SURF. As name suggests, it is a speeded-up version of SIFT. In SIFT, Lowe approximated Laplacian of Gaussian with Difference of Gaussian for finding scale-space. SURF goes a little further and approximates LoG with Box Filter. Below image shows a demonstration of such an approximation. One big advantage of this approximation is that, convolution with box filter can be easily calculated with the help of integral images. And it can be done in parallel for different scales. Also the SURF rely on determinant of Hessian matrix for both scale and location.

For orientation assignment, SURF uses wavelet responses in horizontal and vertical direction for a neighbourhood of size 6s. Adequate guassian weights are also applied to it. Then they are plotted in a space as given in below image. The dominant orientation is estimated by calculating the sum of all responses within a sliding orientation window of angle 60 degrees.Interesting thing is that, wavelet response can be found out using integral images very easily at any scale. For many applications, rotation invariance is not required, so no need of finding this orientation, which speeds up the process. SURF provides such a functionality called Upright-SURF or U-SURF.

It improves speed and is robust upto $\pm 15°$. OpenCV supports both, depending upon the flag, **upright**. If it is 0, orientation is calculated. If it is 1, orientation is not calculated and it is more faster.



For feature description, SURF uses Wavelet responses in horizontal and vertical direction (again, use of integral images makes things easier). A neighbourhood of size 20sX20s is taken around the keypoint where s is the size. It is divided into 4x4 subregions. For each subregion, horizontal and vertical wavelet responses are taken and a vector is formed like this, $v = (\sum d_x, \sum d_y, \sum |d_x|, \sum |d_y|)$.

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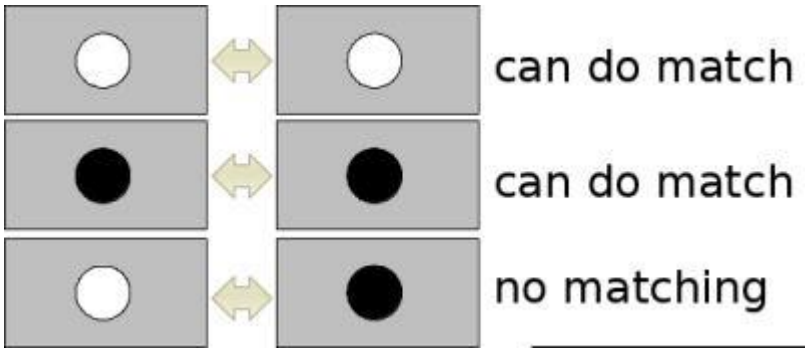
This when represented as a vector gives SURF feature descriptor with total 64 dimensions. Lower the dimension, higher the speed of computation and matching, but provide better distinctiveness of features.

For more distinctiveness, SURF feature descriptor has an extended 128 dimension version. Another important improvement is the use of sign of Laplacian (trace of Hessian Matrix) for underlying interest point. It adds no computation cost since it is already computed during detection.

The sign of the Laplacian distinguishes bright blobs on dark backgrounds from the reverse situation. In the matching stage, we only compare features if they have the same type of contrast (as shown in image below). This minimal information allows for faster matching, without reducing the descriptor's performance.



In short, SURF adds a lot of features to improve the speed in every step. Analysis shows it is 3 times faster than SIFT while performance is comparable to SIFT. SURF is good at handling images with blurring and rotation, but not good at handling viewpoint change and illumination change.

4. HARDWARE AND SOFTWARE REQUIREMENTS

4.1 Software Requirements

The software requirements document is the specification of the system. It should include both a definition and a specification of requirements. It is a set of what the system should do rather than how it should do it . It is useful in estimating cost , planning team activities , performing tasks and tracking the teams and tracking the team's progress throughout the development activity.

- **Client on IDE:** Net beans 8.0.
- **Database Server:** MySQL 5.0.
- **Database IDE:** HeidiSQL 8.3.1

4.2 Hardware Requirements:

Developing Kit			
	Processor	**RAM**	**Disk Space**
Net Beans 8.s0	**Computer with a 2.6GHz Dual Core processor or higher**	**1GB Minimum**	**Minimum 80 GB**
Database			
MySQL 5.0	**Dual Core processor at 2.6GHz or faster**	**Minimum 1 GB Physical Memory**	**Minimum 80 GB**
HeidiSQL 8.3	**Dual Core processor at 2.6GHz or faster**	**Minimum 1GB Physical Memory**	**Minimum 80 GB**

4.3 DOMAIN KNOWLEDGE:

INTRODUCTION - KNOWLEDGE AND DATA ENGINEERING

Big data means really a big data, it is a collection of large datasets that cannot be processed using traditional computing techniques. Big data is not merely a data, rather it has become a complete subject, which involves various tools, technqiues and frameworks.

Benefits of Big Data

Big data is really critical to our life and its emerging as one of the most important technologies in modern world. Follow are just few benefits which are very much known to all of us:

- Using the information kept in the social network like Facebook, the marketing agencies are learning about the response for their campaigns, promotions, and other advertising mediums.
- Using the information in the social media like preferences and product perception of their consumers, product companies and retail organizations are planning their production.Using the data regarding the previous medical history of patients, hospitals are providing better and quick service.

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Purpose of Image processing:

The purpose of image processing is divided into 5 groups. They are:

1. Visualization - Observe the objects that are not visible.
2. Image sharpening and restoration - To create a better image.
3. Image retrieval - Seek for the image of interest.
4. Measurement of pattern – Measures various objects in an image.
5. Image Recognition – Distinguish the objects in an image.

5. MODULE DESCRIPTION

In this project there are three modules. They are

- Authentication
- User Module
- Admin Module

5.1 AUTHENTICATION

In this module user has to login the account. Before login user has to registered. Once the user is registered it will be allowed by admin. Then only the user can able to login. In registration user has to upload a image and choose a image password. During registration user has to provide additional details like name, account number, age, email id, address, phone number, bank name, branch name etc.

5.2 USER MODULE

User can able to perform three process. They are

- Fixed deposit
- Add Beneficiary
- Transaction

FIXED DEPOSIT

User can able to deposit some amount as fixed deposit. For fixed deposit user has to select a number of years. Based on the number of years the interest is calculated.

ADD BENEFICIARY

In this module user has to give the beneficiary details. All details are visible to user. The beneficiary which is added by the user only shown in the transaction process. The beneficiary will be enabled by admin. User can able to view, edit and delete the beneficiary account.

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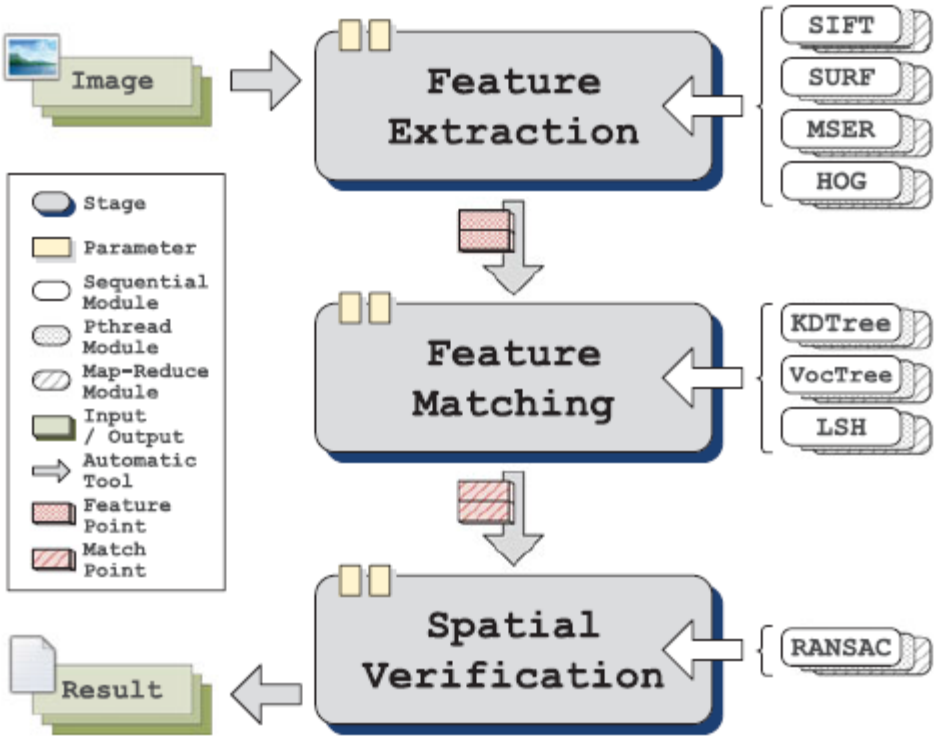
TRANSACTION

In transaction process user has to choose beneficiary account and enter the amount. After the amount is entered user has to select a correct image. If the image is correctly choose then it will ask image password. If the image password is correctly choose then only the transaction process completed. Else the transaction will not be processed.

6. SYSTEM ARCHITECTURE



ADMIN MODULE

Admin can have the three process. They are

- Add New Account
- Search Account
- Enable Beneficiary

ADD NEW ACCOUNT

In this module the registered account are viewed by the admin. All the information are verified by the admin. And admin add that particular account. If and only if the admin add the particular account, then only the account holder can able to login.

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SEARCH ACCOUNT

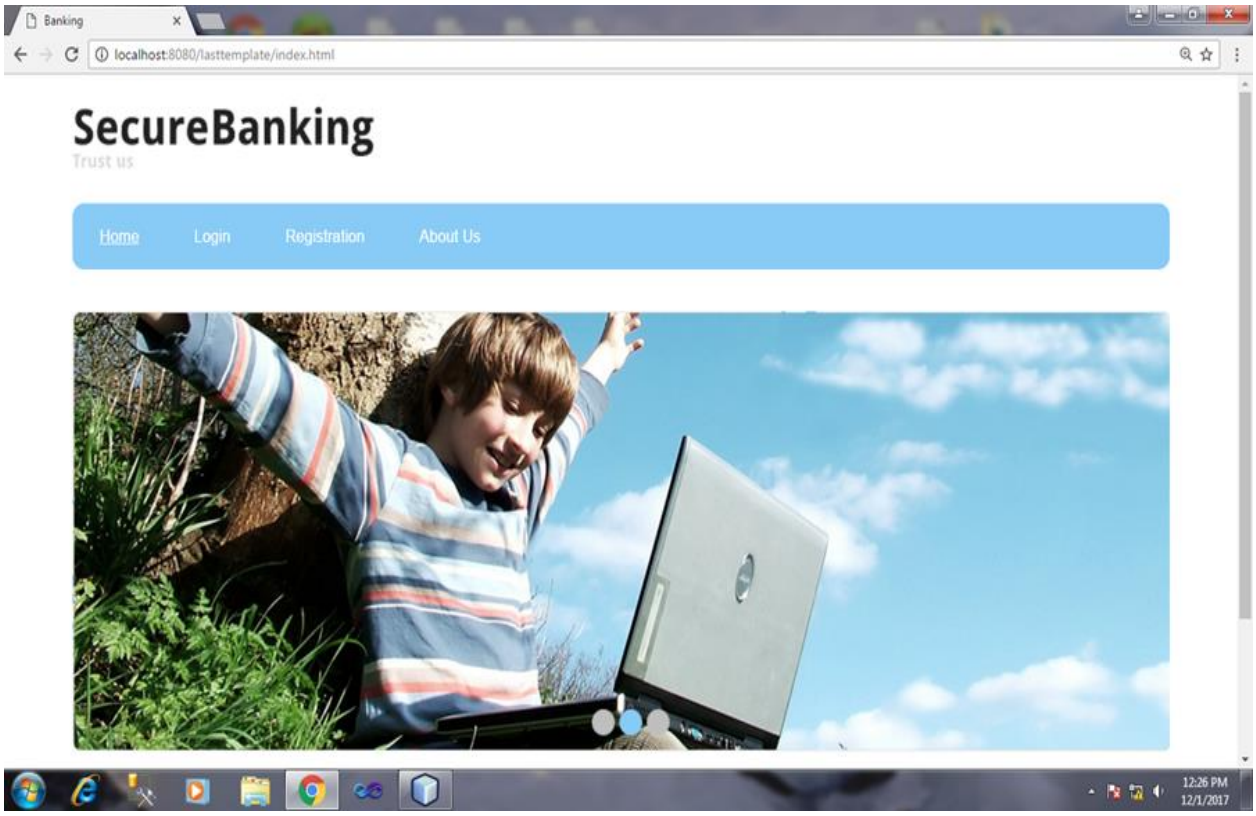
Admin can able to view all the information of customer. And admin can able to search a particular account and view that account details.

ENABLE BENEFICIARY

Admin can have the authorization to enable the beneficiary account.The beneficiary added to the particular account is viewed by the admin. If and only if the admin enable the beneficiary account, then only the user can able to perform transaction.

7. SCREEN SHOTS

7.1 HOME



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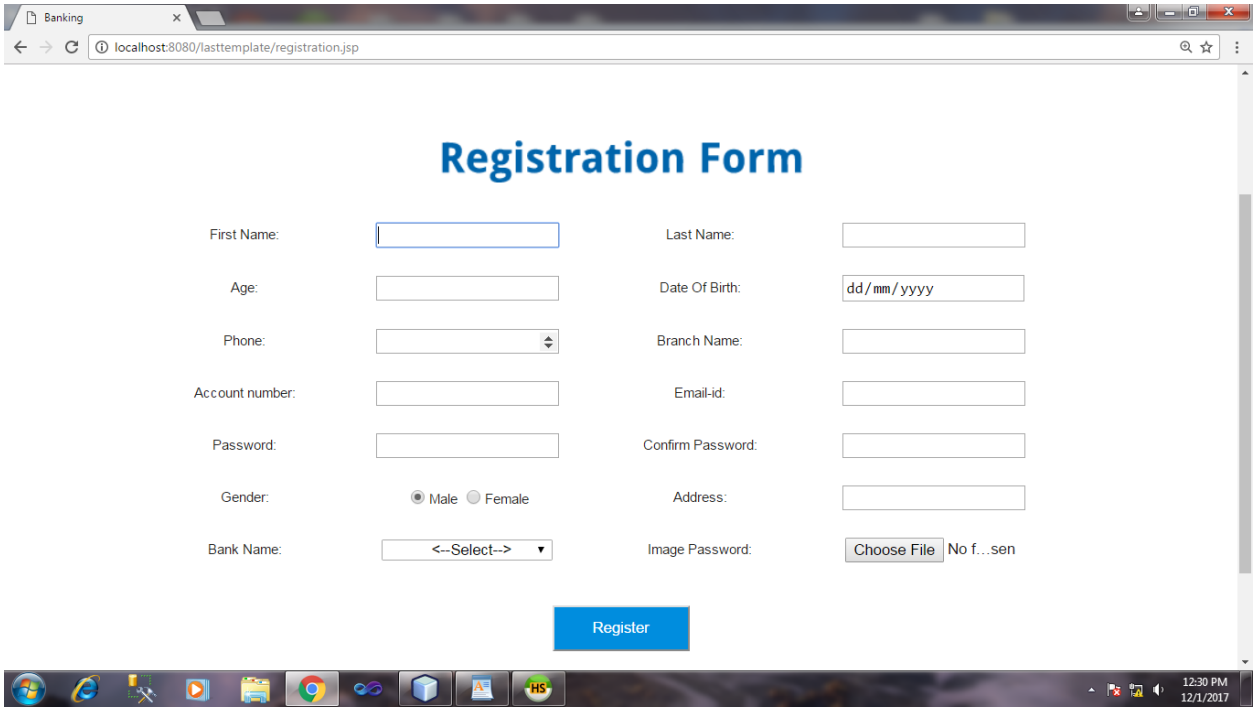
7.2 REGISTRATION PAGE:



CONCLUSION

We have assembled and designed a multimedia retrieval benchmarking framework (MMRBench) for architecture design and system evaluation. In MMRBench , we provide multiple algorithm versions, supporting tools and a flexible framework. The design makes it easier for an end user to generate customized benchmark suites , or even a complete multimedia retrieval system , for various system requirements.

FUTURE ENHANCEMENT

Now we used MMR in Banking System. In future we can use this application in any social media such as Facebook, Twitter etc., to provide high security.

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