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BUILDING CONFIDENTIAL AND EFFICIENT QUERY SERVICES IN THE CLOUD WITH RASP DATA PERTURBATION

P. Subasri and P.N. Suguna*

P. Subasri, Department of Computer Science, Ponnaiyah Ramajayam Institute of Science and Technology, PRIST University Thanjavur – 613 005, Tamil Nadu

***Corresponding author**
P.N. Suguna, Assistant Professor, Department of Computer Science, Ponnaiyah Ramajayam Institute of Science and Technology, PRIST University Thanjavur – 613 005, Tamil Nadu

ABSTRACT

We propose the RASP perturbation approach to hosting query services in the cloud, which satisfies the CPEL criteria: data Confidentiality, query Privacy, Efficient query processing, and Low in-house workload. The requirement on low in-house workload is a critical feature to fully realize the benefits of cloud computing, and efficient query processing is a key measure of the quality of query services. RASP perturbation is a unique composition of OPE, dimensionality expansion, random noise injection, and random projection, which provides unique security features. It aims to preserve the topology of the queried range in the perturbed space, and allows to use indices for efficient range query processing. With the topology-preserving features, we are able to develop efficient range query services to achieve sublinear time complexity of processing queries. We then develop the kNN query service based on the range query service. The security of both the perturbed data and the protected queries is carefully analyzedunder a precisely defined threat model. We also conduct several sets of experiments to show the efficiency of query processing and the low cost of in-house processing.

Keywords: RASP, Building, Cloud service, Query services

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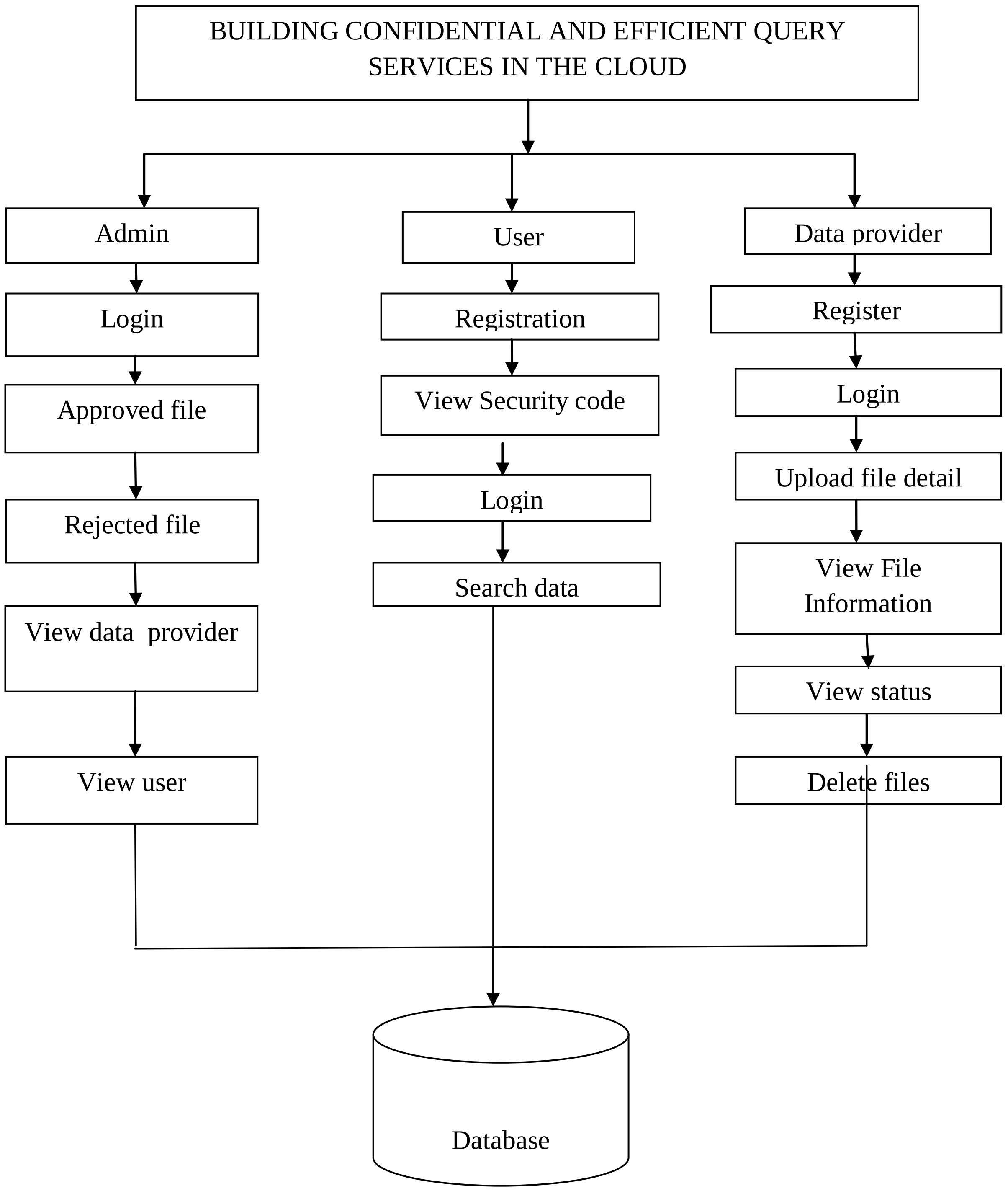
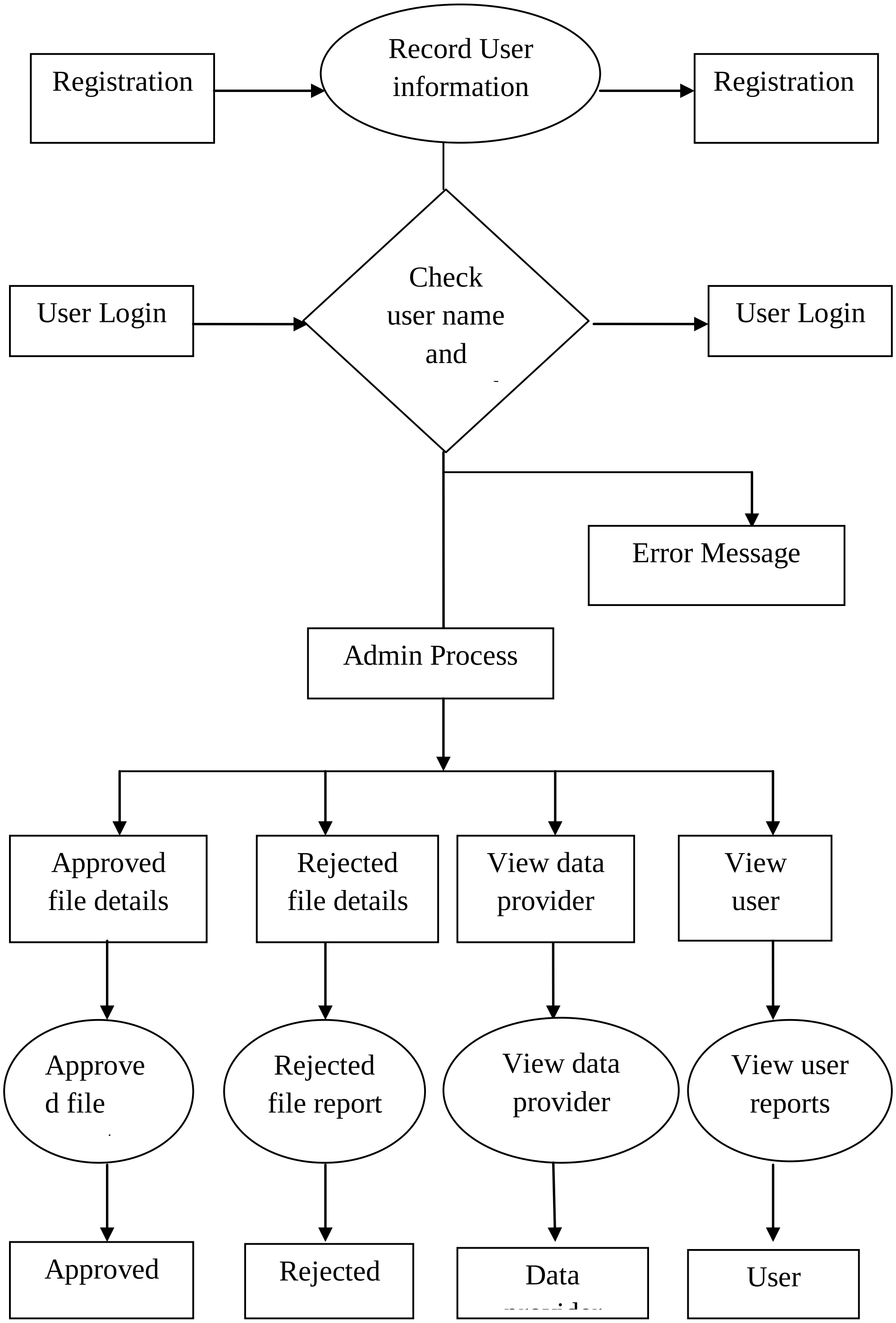
1. INTRODUCTION

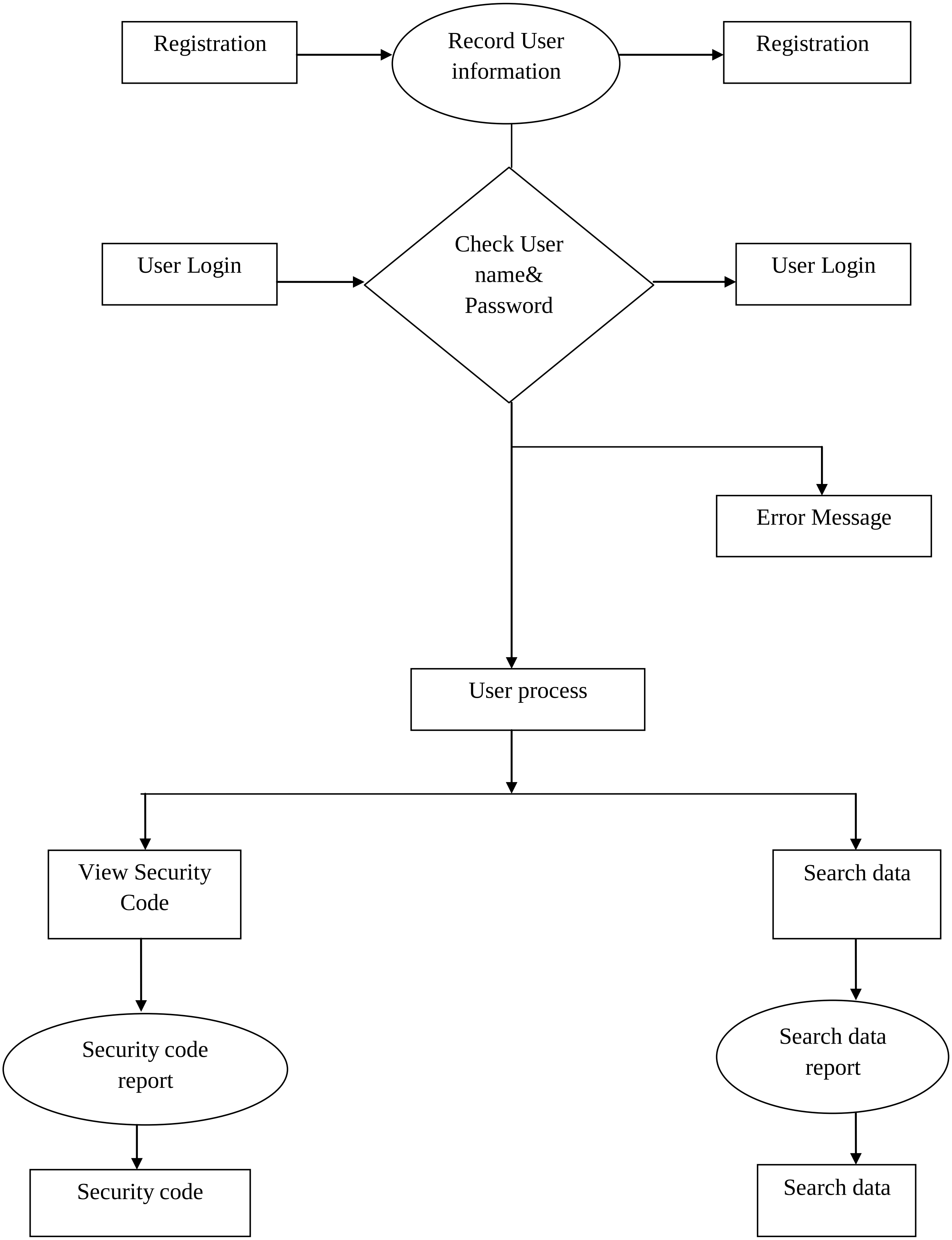
Hosting data-intensive query services in the cloud is increasingly popular because of the unique advantages in scalability and cost-saving. With the cloud infrastructures, the service owners can conveniently scale up or down the service and only pay for the hours of using the servers. This is an attractive feature because the workloads of query services are highly dynamic, and it will be expensive and inefficient to serve such dynamic workloads with in-house infrastructures [2]. However, because the service providers lose the control over the data in the cloud, data confidentiality and query privacy have become the major concerns. Adversaries, such as curious service providers, can possibly make a copy of the database or eavesdrop users' queries, which will be difficult to detect and prevent in the cloud infrastructures. While new approachesare needed to preserve data confidentiality and query privacy, the efficiency of query services and the benefits of using the clouds should also be preserved. It will not be meaningful to provide slow query services as a result of security and privacy assurance. It is also not practical for the data owner to use a significant amount of inhouse resources, because the purpose of using cloud resources is to reduce the need of maintaining scalable in-house infrastructures. Therefore, there is an intricate

2. SYSTEM DESIGN

2.1 DATA FLOW DIAGRAM




Registration
Record User information
Registration
User Login
Check user name and
User Login
Error Message
Admin Process
Approved file details
Rejected file details
View data provider
View user
Approve d file
Rejected file report
View data provider
View user reports
Approved
Rejected
Data
User


Registration
Record User information
Registration
User Login
Check User name& Password
User Login
Error Message
User process
View Security Code
Search data
Security code report
Search data report
Security code
Search data

relationship among the data confidentiality, query privacy, the quality of service, and the economics of using the cloud.

3.PROJECT DESCRIPTION

This process can be entitled as "Building Confidential and Efficient Query in the cloud". It uses ASP.NET as Front End and SQL SERVER as Back End. This process can be done through the following modules.

MODULES

The admin module has the following process:

- ✓ Login
- ✓ Approved file
- ✓ Rejected file
- ✓ View data provider

3.2 TABLE DESIGN

ADMINISTATOR:

FIELD NAME	DATATYPE	DESCRIPTION
UID	Bigint	UserID
UN	Varchar(50)	UserName
Pwd	Varchar(50)	Password

REGISTRATION:

FIELD NAME	DATATYPE	DESCRIPTION
Registration Id	Numeric(18,0)	Registration Id
Name	Varchar(50)	Name
Username	Varchar(50)	Username
Password	Nvarchar(50)	Password
Mail id	Nvarchar(50)	Mail id
Mobile Number	Numeric(18,0)	Mobile Number
Address	Nvarchar(50)	Address
Type	Varchar(50)	Type

4. SOFTWARE DESCRIPTION

FRONT END DESIGN

C#.NET

C# is an object-oriented programming language developed by Microsoft Corporation. C# source code as well as those of other .NET languages is compiled into an intermediate byte code called Microsoft Intermediate Language. C# is primarily derived from the C, C++, and Java programming languages with some features of Microsoft's Visual Basic in the mix. C# is used to develop applications for the Microsoft .NET environment. .NET offers an alternative to Java development. Microsoft's Visual Studio .NET development environment incorporates several different languages including ASP.NET, C#,

- ✓ View user

The user module has the following process:

- ✓ Registration
- ✓ View security code
- ✓ Login
- ✓ Search data

The data provider module has the following process

- ✓ Register
- ✓ Login
- ✓ Upload file details
- ✓ View file information
- ✓ View status
- ✓ Delete file

FILE UPLOAD

FIELD NAME	DATATYPE	DESCRIPTION
File id	Numeric(18,0)	File id
Date &Time	Numeric(18,0)	Date and Time
Select File To Upload	Varchar(50)	Select File To Upload

C++, and J# (Microsoft Java for .NET), all of which compile to the Common Language Runtime.

A new form of iterate employs co-routines via a functional-style yield keyword similar to the one found in the Python language. Anonymous methods provide closure functionality.

Generics or parameterized types support some features not supported by C++ templates such as type constraints on generic parameters. However, expressions cannot be used as generic parameters as in C++ templates. In contrast to the Java implementation, parameterized types are first class objects in the virtual machine, allowing for optimizations and preservation of type information.

Null able value types facilitate interaction with SQL databases. Sample null able type declaration: in Variable Name = null; Partial types allow the separation of a class implementation into more than one source file. This feature was implemented primarily so Visual Studio generated code can be kept separate from developer code. C# version 3.0 introduces several language extensions to support higher order, functional style class libraries. The extensions enable the construction of compositional APIs with the expressive power of query languages in areas such as relational databases and XML. C# 3.0 will include the following new features: Anonymous types: topple types automatically inferred and created from object initializes. Object initializes ease construction and initialization of objects.

Implicitly typed local variables permit the type of local variables to be inferred from the expressions used to initialize them. Implicitly typed arrays: a form of array creation and initialization that infers the element type of the array from an array initialize. Extension methods make it possible to extend existing types and constructed types with additional methods.

Lambda expressions: an evolution of anonymous methods providing improved type inference and conversions to both delegate types and expression trees. Expression trees permit lambda expressions to be represented as data (expression trees) instead of as code (delegates).

Query expressions provide a language integrated syntax for queries that is similar to relational and hierarchical query languages such as SQL and XQuery. Microsoft C# developers note that C# 3.0 is byte code compatible with C# version 2.0. For the most part, enhancements comprise purely syntactic or compile-time improvements.

IMPORTING EXTENSION METHODS

Extension methods are imported through *using-namespace-directive*s (§9.3.2). In addition to importing the types contained in a namespace, a *using-namespace-directive* imports all extension methods in all static classes in the namespace. In effect, imported extension methods appear as additional methods on the types that are given by their first parameter and have lower precedence than regular instance methods.

The rewritten form is then processed as a static method invocation, except for the way in which *identifier* is resolved: Starting with the closest enclosing namespace declaration, continuing with each enclosing namespace declaration, and ending with the containing compilation unit, successive attempts are made to process the rewritten method invocation with a method group consisting of all accessible extension methods with the name given by *identifier* imported by the namespace declaration's *using-namespace-directive*s. The first method group that yields a non-empty set of candidate methods is the one chosen for the rewritten method invocation. If all attempts yield empty sets of candidate methods, a compile-time error occurs.

The preceding rules mean that instance methods take precedence over extension methods, and extension methods imported in inner namespace declarations take precedence over extension methods imported in outer namespace declarations. For example:

In the example, `B`'s method takes precedence over the first extension method, and `C`'s method takes precedence over both extension methods.

BACK END DESIGN

SQL SERVER

SQL Server is such a rich and powerful that most people where to begin when they start using it.

SQL Server makes it easy for users even beginners to work with databases, you can Create Table, Edit data and use queries to find the data you want with very little effort, and SQL Server includes wizards that can do the work of designing data entry forms, reports and mailing labels for you.

SQL Server also makes it easy for develops to create applications. It includes as entire programming language, visual basic for applications, and its interface is so powerful that developers can create many custom applications without programming. SQL Server ‘ quires, reports and macros are powerful enough to do most of the work that use to require programming.

When users learn SQL Server that often find they have to wade through long discussions of power features to learn about the simple features they need to work with on their own data. The help system is so extensive and complex discussion of properties, expressions and other advanced features along with instructions on the basis of creating tables, queries, simple forms, reports and mailing labels, which average the user actually needs.

SQL Server has become the best selling database management programs because of its combination of power and ease of use. It is powerful enough that developers can use it to create entire applications. Yet it is easy enough to use that in a short time, beginners can learn to manage their own data with SQL Server.

In others database management programs; the term database is sometimes used to refer to tables that hold data. SQL Server uses the term more broadly. An SQL Server database consists of the tables that hold the data and all he related objects such as quires, forms and reports that are used to manage the data. Microsoft SQL Server will probably be an option on the programming menu, which you can select to start the program.

When you open a database, SQL Server displays the database window sometimes called as the database container, because it contains all the objects that make up the database.

There are two terms you should know, as they are almost always used when computerized databases are discussed. They are simply new names for familiar things.

A record is all the data on a single entity. For example, if have a list of names and address, each record includes the name and address of one person. In the sample table, where you have a list of products, each record includes the name and other details for one product.

A filed is one piece of data that appears up each record. For example, if you have a list of names and addresses the first name might be the first field, the last name might be the second field and the street address might be the third field. In the same table there are fields of product id, product name, supplier and there.

A table is made up of all the similar records you want to work on together. For example you might want to keep the names and address of all your friends in second table.

The simplest and most important type of query is a select query is a select query, which lets you select which data from a table is displayed. You can specify which fields are displayed, enter criteria to specify which records are displayed and specify the sort order of these records.

Forms let you control how data is displayed on the screen. Macros let you automate and speed up your work; they are also used when you develop applications. A macro is a list of actions. Macros can save time for SQL Server users.

MULTIPLE DATABASES

Most Business applications database because there are many types of data that you cannot store effectively in a single table.

When businesses first begin to use computers they discovered they could eliminate repetitious data by breaking up some databases into multiple tables.

When a business kept records on paper, for example, the payroll department had a file with each employee's name, address, social security number unmanned data on the benefits

Department had a file with each employee's name, address, Social Security number and data on the benefits to which each was entitled.

The computer can looks up the name and address that go with each payroll record. It can retrieve data so quickly that it can display the name and address ROM one table and the payroll data from another table just as quickly as if they were in a single table.

You only have to enter the basic data once, though. When sometimes you only have to change the address in one table, and it will automatically be changed in all the forms used by all the departments.

Relational Database is not needed for very simple data, such as a mailing list, but they are needed for most business applications.

INTERNET INTEGRATION

The SQL Server 2000 programming model is integrated with the Windows DNA architecture for developing Web applications, and SQL Server 2000 supports features such as English Query and the Microsoft Search Service to incorporate user-friendly queries and powerful search capabilities in Web application.

SCALABILITY AND AVAILABILITY

The same database engine can be used across platforms ranging from laptop computers running Microsoft Windows 98 through large, multiprocessor servers running Microsoft Windows 2000 Data center edition. SQL Server 2000 Enterprise Edition supports features such as federated servers, indexed views, and large memory support that allow it to scale to the performance levels required by the largest Websites.

EASE OF INSTALLATIONS, DEPLOYMENT AND USE

SQL Server 2000 includes a set of administrative and development tools that improve upon the process of installing, deploying, managing, and using SQL Server across several sites. SQL Server 2000 also supports a standards-based programming model integrated with the Windows DNA, making the use of SQL Server databases and data warehouses a seamless part of building powerful and scalable systems. These features allow you to rapidly deliver SQL Server applications that customers can implement with a minimum of installation and administrative overhead.

Enterprise Manager is the main administrative console for SQL Server installations. It provides you with a graphical "birds-eye" view of all of the SQL Server installations on your network. You can perform high-level administrative functions that affect one or more servers, schedule common maintenance tasks or create and modify the structure of individual databases.

Query Analyzer offers a quick and dirty method for performing queries against any of your SQL Server databases. It's a great way to quickly pull information out of a database in response to a user request, test queries before implementing them in other applications, create/modify stored procedures and execute administrative tasks.

SQL Profiler provides a window into the inner workings of your database. You can monitor many different event types and observe database performance in real time. SQL Profiler allows you to capture and replay system "traces" that log various activities. It's a great tool for optimizing databases with performance issues or troubleshooting particular problems. Service Manager is used to control the MS SQL Server (the main SQL Server process), MSDTC (Microsoft Distributed Transaction Coordinator) and SQL Server Agent processes. An icon for this service normally resides in the system tray of machines running SQL Server. You can use Service Manager to start, stop or pause any one of these services.

Data Transformation Services (DTS) provide an extremely flexible method for importing and exporting data between a Microsoft SQL Server installation and a large variety of other formats. The most commonly used DTS application is the "Import and Export Data" wizard found in the SQL Server program group.

DATABASE

A database is similar to a data file in that it is a storage place for data. Like a data file, a database does not present information directly to a user; the user runs an application that accesses data from the database and presents it to the user in an understandable format.

Database systems are more powerful than data files. The data is more highly organized. In a well-designed database, there are no duplicate pieces of data that the user or application has to update at the same time. Related pieces of data are grouped together in a single structure or record, and relationships can be defined between these structures and records.

When working with data files, an application must be coded to work with the specific structure of each data file. In contrast, a database contains a catalog that applications use to determine how data is organized. Generic database applications can use the catalog to present users with data from different databases dynamically, without being tied to a specific data format.

RELATIONAL DATABASE

There are different ways to organize data in a database but relational databases are one of the most effective. Relational database systems are an application of mathematical set theory to the problem of effectively organizing data. In a relational database, data is collected into tables (called relations in relational theory).

A table represents some class of objects that are important to an organization. For example, a company may have a database with a table for employees, another table for customers, and another for stores. Each table comprises columns and rows (attributes and tuples in relational theory). Each column represents some attribute of the object represented by the table. For example, an Employee table would typically have columns for first name, last name, employee ID, department, pay grade, and job title. Each row represents an instance of the object represented by the table. For example, one row in the Employee table represents the employee who has employee ID 12345.

When organizing data into tables, you can usually find many different ways to define tables. Relational database theory defines a process, normalization, which ensures that the set of tables you define will organize your data effectively.

While SQL Server is designed to work as a server in a client/server network, it is also capable of working as a stand-alone database directly on the client. The scalability and ease-of-use features of SQL Server allow it to work efficiently on a client without consuming too many resources.

STRUCTURED QUERY LANGUAGE (SQL)

To work with data in a database, you must use a set of commands and statements (language) defined by the DBMS software. There are several different languages that can be used with relational databases; the most common is SQL. Standards for SQL have been defined by both the American National Standards Institute (ANSI) and the International Standards Organization (ISO). Most modern DBMS products support the Entry Level of SQL-92, the latest SQL standard (published in 1992).

5 ALGORITHM USED

ADMINISTRATOR:

Step 1: Start the process
Step 2: Admin should login into the portal to access the
Step 3: Admin should approve the file received from the user
Step 4: If there is any error occurred admin should rejected the file
Step 5: Admin can able to view the details of the data provider about their id,name etc.
Step 6: Admin can able to view the details of user about their id,name etc.

USER:

Step 1: User first register into the portal by giving their details
Step 2: Once the registration done by the user they will get the security Code to their mail
Step 3: After entering the correct code user can able to login to the portal
Step 4: User should search the data after enter into the portal.

DATA PROVIDER:

Step 1: User first register into the portal by giving their details
Step2 : Once the registration done by the user they will get the security Code to their mail
Step 3: After entering the correct code user can able to login to the portal.
Step 4: Data provider now able to upload the file

Step 5: They can also view the file information directly .

Step 6: They can check the status of the file ie full information about the file upload date, size etc.

Step 7: If there is any correction needed or any unwanted files present data provider will delete the file.

6. TESTING

DEFINITION OF TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product It is the process of exercising software with the intent of ensuring that the

Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

TYPES OF TESTS

UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

FUNCTIONAL TEST

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Valid Input : Identified classes of valid input must be accepted.

Invalid Input : Identified classes of invalid input must be rejected.

Functions : Identified functions must be exercised.

Output : Identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

SYSTEM TEST

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

WHITE BOX TESTING

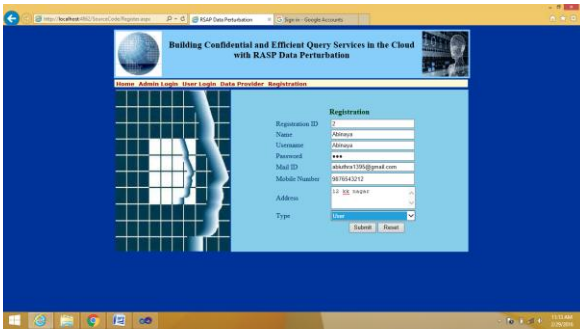
White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

BLACK BOX TESTING

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot "see" into it. The test provides inputs and responds to outputs without considering how the software works.

7. SCREEN LAYOUT

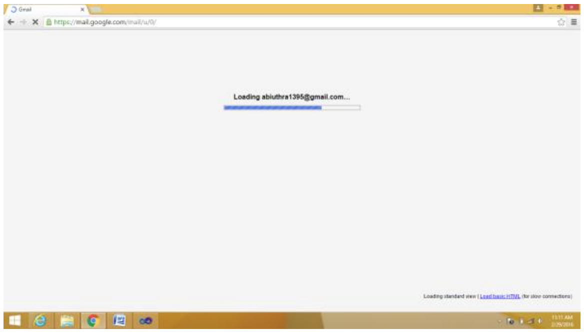
HOME REGISTER:


RSAP Data Perturbation
Sign in - Google Accounts
Home Admin Login User Login Data Provider Registration
Submit
Reset

Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

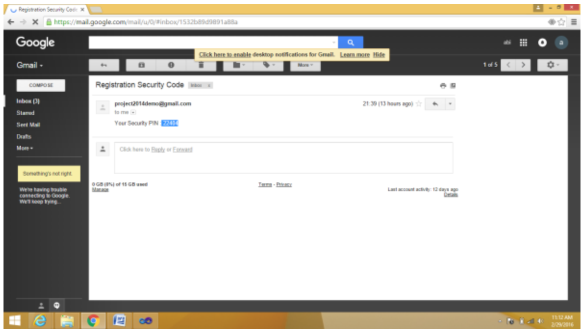
Registration

Registration ID: 2
Name: Abinaya
Username: Abinaya
Password: ●●●
Mail ID: abiuthra1395@gmail.com
Mobile Number: 9876543212
Address: 12 kk nagar
Type: User



Loading abiuthra1395@gmail.com...

Loading standard view | Load basic HTML (for slow connections)


Google
Gmail
COMPOSE
Inbox (3)
Starred
Sent Mail
Drafts
More
More
1 of 5
Click here to enable desktop notifications for Gmail. Learn more Hide

https://mail.google.com/mail/u/0/#inbox/1532b89d9891a88a

Registration Security Code

project2014demo@gmail.com
to me
21:39 (13 hours ago)

Your Security PIN :22404

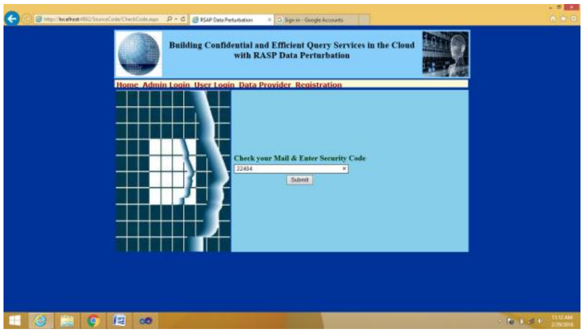
Click here to Reply or Forward

Something's not right.

We're having trouble connecting to Google. We'll keep trying...

0 GB (0%) of 15 GB used
Manage
Terms - Privacy
Last account activity: 12 days ago
Details

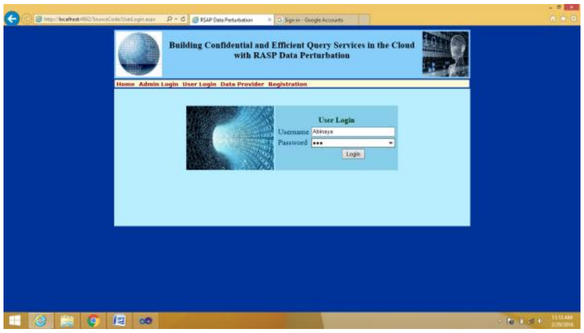
SECURITY CODE:



Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

Check your Mail & Enter Security Code: 22404

USER LOGIN:

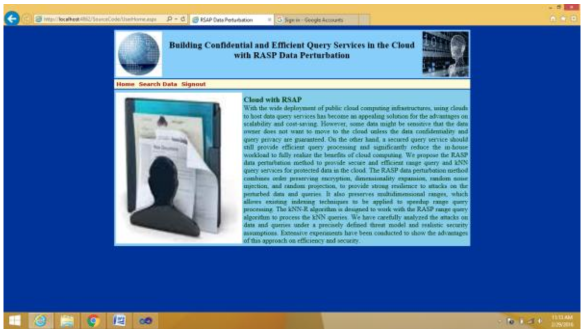


Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

User Login

Username: Abinaya
Password: ●●●

SEARCH DATA:

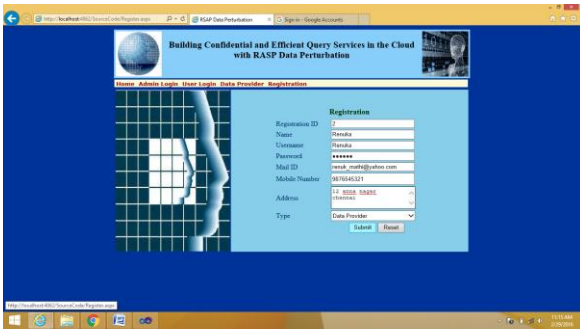


Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

Cloud with RSAP

With the wide deployment of public cloud computing infrastructures, using clouds to host data query services has become an appealing solution for the advantages on scalability and cost-saving. However, some data might be sensitive that the data owner does not want to move to the cloud unless the data confidentiality and query privacy are guaranteed. On the other hand, a secured query service should still provide efficient query processing and significantly reduce the in-house workload to fully realize the benefits of cloud computing. We propose the RASP data perturbation method to provide secure and efficient range query and kNN query services for protected data in the cloud. The RASP data perturbation method combines order preserving encryption, dimensionality expansion, random noise injection, and random projection, to provide strong resilience to attacks on the perturbed data and queries. It also preserves multidimensional ranges, which allows existing indexing techniques to be applied to speedup range query processing. The kNN-R algorithm is designed to work with the RASP range query algorithm to process the kNN queries. We have carefully analyzed the attacks on data and queries under a precisely defined threat model and realistic security assumptions. Extensive experiments have been conducted to show the advantages of this approach on efficiency and security.

DATA PROVIDER:


Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

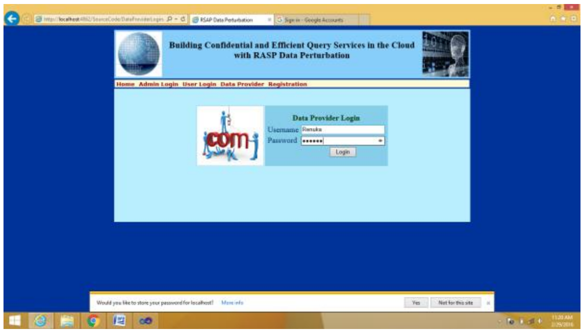
Home Admin Login User Login Data Provider Registration

Registration

Registration ID: 2
Name: Renuka
Username: Renuka
Password: ••••••
Mail ID: renuk_mathi@yahoo.com
Mobile Number: 9876545321
Address: 12 anna nagar chennai
Type: Data Provider

Submit Reset

DATA PROVIDER LOGIN:


Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

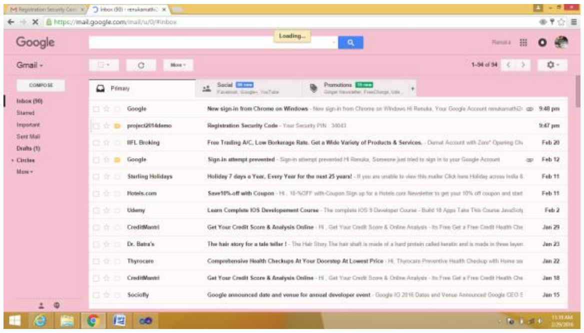
Home Admin Login User Login Data Provider Registration

Data Provider Login

Username: Renuka
Password: ••••••

Login

Would you like to store your password for localhost? More info Yes Not for this site


https://mail.google.com/mail/u/0/#inbox

Inbox (90) 1–94 of 94

Google	New sign-in from Chrome on Windows - New sign-in from Chrome on Windows Hi Renuka, Your Google Account	9:48 pm
project2014demo	Registration Security Code - Your Security PIN : 34043	9:47 pm
IIFL Broking	Free Trading A/C, Low Borkerage Rate. Get a Wide Variety of Products & Services. - Demat Account with Zero* Opening Ch	Feb 20
Google	Sign-in attempt prevented - Sign-in attempt prevented Hi Renuka, Someone just tried to sign in to your Google Account	Feb 12
Sterling Holidays	Holiday 7 days a Year, Every Year for the next 25 years! - If you are unable to view this mailer Click here Holiday across India 8	Feb 11
Hotels.com	Save10%.off with Coupon - Hi , 10-%OFF with-Coupon Sign up for a Hotels.com Newsletter to get your 10% off coupon and start	Feb 11
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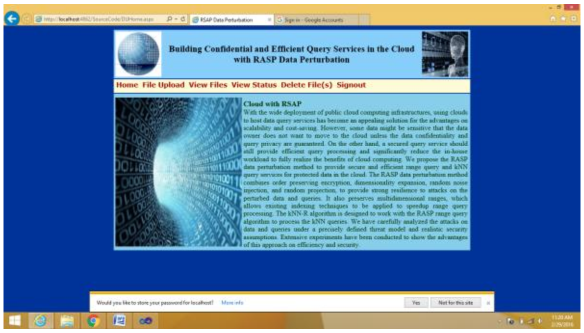
Thyrocare	Comprehensive Health Checkups At Your Doorstep At Lowest Price - Hi, Thyrocare Preventive Health Checkup with Home sa	Jan 22
CreditMantri	Get Your Credit Score & Analysis Online - Hi , Get Your Credit Score & Online Analysis - Its Free Get a Free Credit Health Che	Jan 18
Sociofly	Google announced date and venue for annual developer event - Google IO 2016 Dates and Venue Announced Google CEO S	Jan 15


Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

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Cloud with RSAP

With the wide deployment of public cloud computing infrastructures, using clouds to host data query services has become an appealing solution for the advantages on scalability and cost-saving. However, some data might be sensitive that the data owner does not want to move to the cloud unless the data confidentiality and query privacy are guaranteed. On the other hand, a secured query service should still provide efficient query processing and significantly reduce the in-house workload to fully realize the benefits of cloud computing. We propose the RASP data perturbation method to provide secure and efficient range query and kNN query services for protected data in the cloud. The RASP data perturbation method combines order preserving encryption, dimensionality expansion, random noise injection, and random projection, to provide strong resilience to attacks on the perturbed data and queries. It also preserves multidimensional ranges, which allows existing indexing techniques to be applied to speedup range query processing. The kNN-R algorithm is designed to work with the RASP range query algorithm to process the kNN queries. We have carefully analyzed the attacks on data and queries under a precisely defined threat model and realistic security assumptions. Extensive experiments have been conducted to show the advantages of this approach on efficiency and security.

Would you like to store your password for localhost? More info Yes Not for this site

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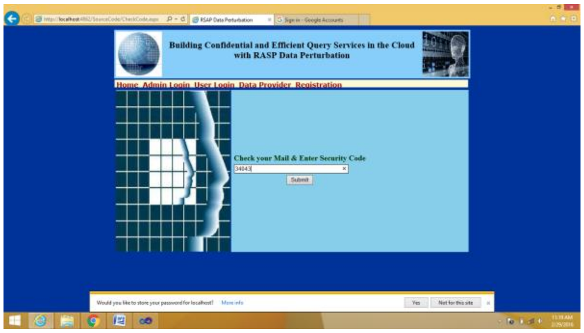
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Check your Mail & Enter Security Code

34043

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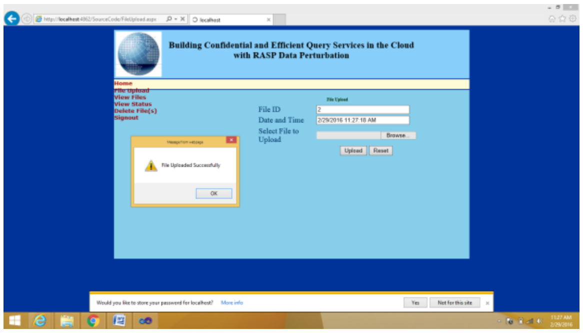
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File Upload

File ID: 2
Date and Time: 2/29/2016 11:27:18 AM
Select File to Upload: Browse...

Upload Reset

Message from webpage: File Uploaded Successfully OK

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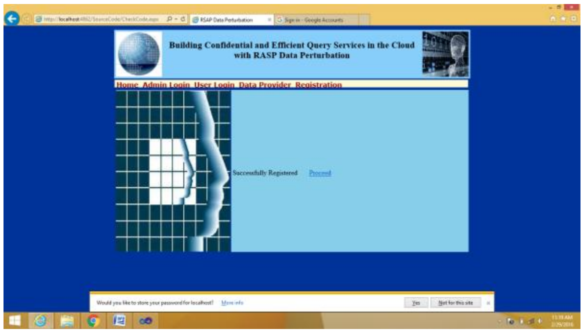
Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

Home Admin Login User Login Data Provider Registration

Successfully Registered Proceed

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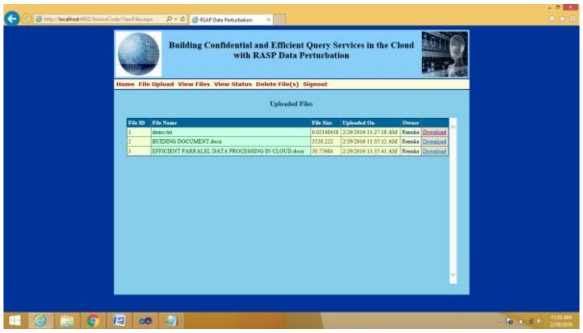
Building Confidential and Efficient Query Services in the Cloud with RASP Data Perturbation

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Uploaded Files

File ID	File Name	File Size	Uploaded On	Owner	
1	demo.txt	0.02148438	2/29/2016 11:27:18 AM	Renuka	Download
2	BUIDING DOCUMENT.docx	3520.222	2/29/2016 11:35:12 AM	Renuka	Download
3	EFFICIENT PARRALEL DATA PROCESSING IN CLOUD.docx	30.75684	2/29/2016 11:35:41 AM	Renuka	Download

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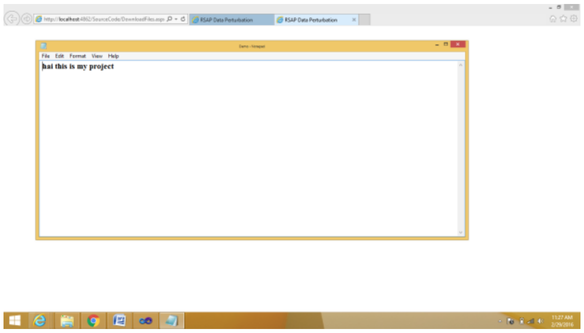
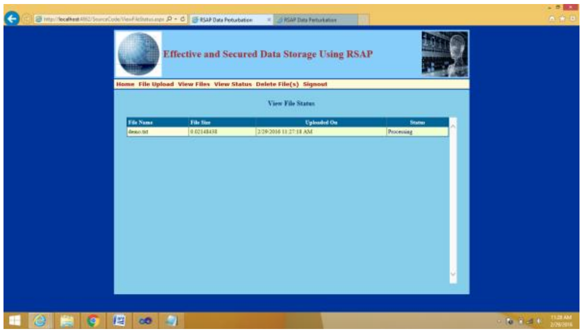


hai this is my project

FILE STATUS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Effective and Secured Data Storage Using RSAP
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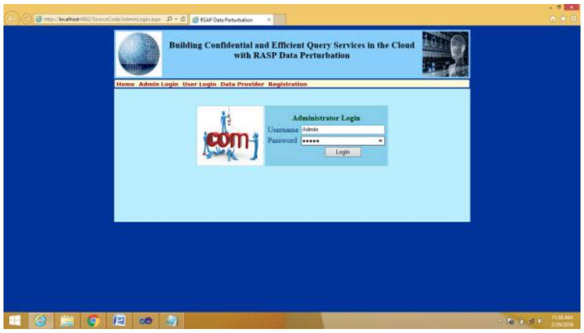
View File Status

File Name	File Size	Uploaded On	Status
demo.txt	0.02148438	2/29/2016 11:27:18 AM	Processing

ADMIN LOGIN: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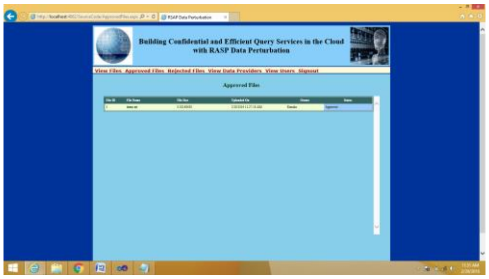
Login

Administrator Login

Username Admin

Password •••••

APPROVED FILES: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Approved Files

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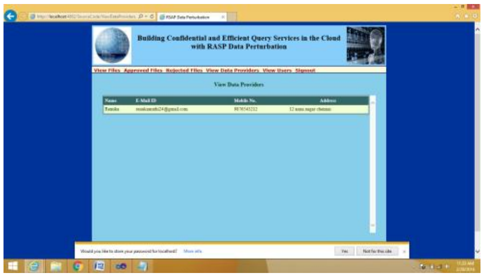
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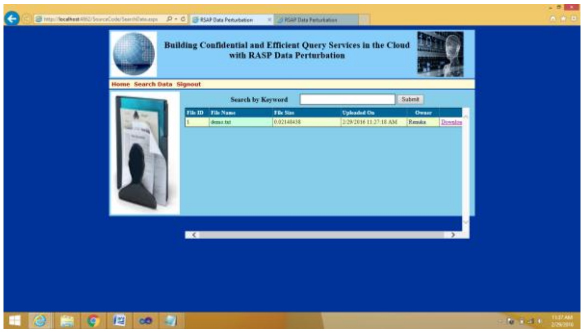
View Data Providers

Name	E-Mail ID	Mobile No.	Address
Renuka	renukamathi24@gmail.com	9876543212	12 anna nagar chennai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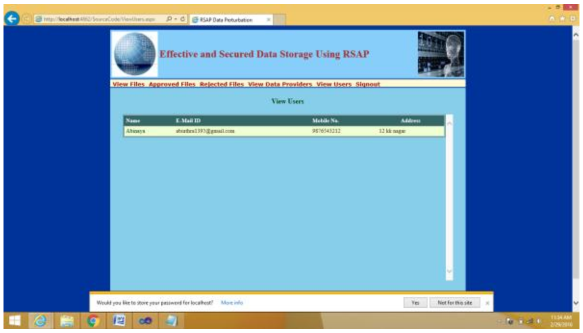
Home Search Data Signout
Submit

Search by Keyword

File ID	File Name	File Size	Uploaded On	Owner	
1	demo.txt	0.02148438	2/29/2016 11:27:18 AM	Renuka	Downloa

VIEW DATA PROVIDER: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Effective and Secured Data Storage Using RSAP
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View Users

Name	E-Mail ID	Mobile No.	Address
Abinaya	abirathna1393@gmail.com	9876543212	12 kk nagar

CONCLUSION

We propose the RASP perturbation approach to hosting query services in the cloud, which satisfies the CPEL criteria: data Confidentiality, query Privacy, Efficient query processing, and Low in-house workload. The requirement on low in-house workload is a critical feature to fully realize the benefits of cloud computing, and efficient query processing is a key measure of the quality of query services. RASP perturbation is a unique composition of OPE, dimensionality expansion, random noise injection, and random projection, which provides unique security features. It aims to preserve the topology of the queried range in the perturbed space, and allows to use indices for efficient range query processing. With the topology-preserving features, we are able to develop efficient range query services to achieve sublinear time complexity of processing queries. We then develop the kNN query service based on the range query service. The security of both the perturbed data and the protected queries is carefully analyzedunder a precisely defined threat model. We also conduct several sets of experiments to show the efficiency of query processing and the low cost of in-house processing.

BIBLIOGRAPHY

1. Sun Microsystems, Inc., "Building customer trust in cloud computing with transparent seurity," Online at https://www.sun. com/offers/details/sun transparency.xml, November 2009.
2. M. Arrington, "Gmail disaster: Reports of mass email deletions," Online at http://www.techcrunch.com/2006/12/ 28/gmail-disasterreports-of-mass-email-deletions/, December 2006.
3. Amazon.com, "Amazon Web Services (AWS)," Online at http://aws. amazon.com, 2008.
4. G. Ateniese, R. D. Pietro, L. V. Mancini, and G. Tsudik, "Scalable and Efficient Provable Data Possession," *Proc. of SecureComm '08*, pp. 1–10, 2008.
5. Google App Engine, Online at http://code.google.com/appengine/.
6. Microsoft Azure, http://www.microsoft.com/azure/.
7. A. Agrawal et al. Ws-bpel extension for people (bpel4people), version 1.0., 2007.
8. M. Amend et al. Web services human task (ws-humantask), version 1.0., 2007.
9. D. Brabham. Crowdsourcing as a model for problem solving: An introduction and cases.
10. Data Communications and Networking, by *Behrouz A Forouzan*.
11. E. Mykletun, M. Narasimha, and G. Tsudik, "Authentication and integrity in outsourced databases," Trans. Storage, vol. 2, no. 2, pp. 107–138, 2006.
12. D. X. Song, D. Wagner, and A. Perrig, "Practical techniques for searches on encrypted data," in SP '00: Proceedings of the 2000 IEEE Symposium on Security and Privacy. Washington, DC, USA: IEEE Computer Society, 2000
13. A. Juels and B. S. Kaliski, Jr., "Pors: proofs of retrievability for large files," in CCS '07: Proceedings of the 14th ACM conference on Computer and communications security. New York, NY, USA: ACM, 2007, pp. 584–597.
14. G. Ateniese, R. Burns, R. Curtmola, J. Herring, L. Kissner, Z. Peterson, and D. Song, "Provable data possession at untrusted stores," in CCS '07: Proceedings of the 14th ACM conference on Computer and communications security. New York, NY, USA: ACM, 2007, pp. 598–609.
15. C. Wang, Q. Wang, K. Ren, and W. Lou, "Ensuring data storage security in cloud computing," in *Proc. of IWQoS'09*, July 2009, pp. 1–9.

Sites Referred:

http://www.asp.net.com
http://www.dotnetspider.com/
http://www.dotnetspark.com
http://www.almaden.ibm.com/software/quest/Resources/
http://www.computer.org/publications/dlib
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Conflict of interest: None declared