Chapter-1

Introduction

Introduction

A key logger is software designed to capture all of a user's keyboard strokes, and then make use of them to impersonate a user in financial transactions.

For example whenever a user types in her password in a bank's sign in box, the key logger intercepts the password. The threat of such key logger is pervasive and can be present both in personal computers and public kiosks.

Human user's involvement in the security protocol is sometimes necessary to prevent this type of attacks

Threats against electronic and financial services can be classified into two major classes: credential stealing and channel breaking attacks Credentials such as users' identifiers, passwords, and keys can be stolen by an attacker when they are poorly managed. For example, a poorly managed personal computer (PC) infected with a malicious software (malware) is an easy target for credential attackers On the other hand, channel breaking attacks—which allow for eavesdropping on communication between users and a financial institution—are another form of exploitation While classical channel breaking attacks can be prevented by the proper usage of a security channel such as IPsec And SSL (secure sockets layer) recent channel breaking attacks are more challenging. Indeed, "keylogging" attacks— or those that utilize session hijacking, phishing and pharming, and visual fraudulence— cannot be addressed by simply enabling encryption. Chief among this class of attacks are key logger. A key logger is software designed to capture all of a user's keyboard strokes, and then make use of them to impersonate a user in financial transactions. For example, whenever a user types in her password in a bank's sign in box, the key logger intercepts the password. The threat of such key loggers is pervasive and can be present both in personal computers and public kiosks; there are always cases where it is necessary to perform financial transactions.

Scope of project

In this paper, we demonstrate that how perception can upgrade security as well as ease of use by utilizing two visual validation conventions: one for one-time-secret key and the other for watchword based verification. Through different examination, we demonstrate that our conventions are safe to large portions of the testing assaults. What's more, we utilize broad contextual analysis on a model of our conventions to demonstrate the capacity of our conventions in certifiable sending. The first commitments of this paper are as per the following:

Two conventions that use perception to give both high security and high ease of use. Exhibit that these conventions are secure under a few true assaults including key loggers.

Android applications are utilized to exhibit convention executions which demonstrate the convenience of our conventions in this present reality. Our protocols are nonspecific and can be connected to numerous settings of validation. For instance, consider terminal in our framework as an ATM (Automated Teller Machine), open PC, among others. Additionally, our outline does not require an express channel between the bank and the cell phone, which is attractive. The cell phone can be supplanted by any gadget with the required usefulness of catching photographs

Features

1. High capacity encoding of data
2. High-speed reading
3. Readable from any direction from 360 degree
4. Structured Append Feature
5. Preventing Session Hijacking.

Problem statement

To solve this problem, the intermediate device between human and terminal is introduced. This helps to design a human involving protocol. Every interaction between the client and the intermediate device is visualized using Quick Response (QR) code. In these protocols, the client does not need to memorize any information other than password and PIN. However, the authentication process can be visualized which enhances security and usability to the client. The security protocol has the client involvement using smartphone with augmented reality. A smartphone with camera is used to visualize the authentication process. Instead of implementing the entire security protocol in computer, a part of it is moved to the smartphone.

Existing System

Whenever a user types in her password in a bank's sign in box, the key logger intercepts the password. The threat of such key loggers is pervasive and can be present both in personal computers and public kiosks; there are always cases where it is necessary to perform financial transactions using a public computer although the biggest concern is that a user's password is likely to be stolen in these computers. Even worse, key loggers, often root kitted, are hard to detect since they will not show up in the task manager process list.

Proposed System

Our approach to solving the problem is to introduce an intermediate device that bridges a human user and a terminal. Then, instead of the user directly invoking the regular authentication protocol, she invokes a more sophisticated but user-friendly protocol via the intermediate helping device. Every interaction between the user and an intermediate helping device is visualized using a Quick Response (QR) code.

Chapter- 2

Language Specification

1. Introduction of Asp.Net

ASP.NET is an open-source server-side web application framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

It was first released in January 2002 with version 1.0 of the .NET Framework, and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using any supported .NET language. The ASP.NET SOAP extension framework allows ASP.NET components to process SOAP messages.

SQL Server mode

State variables are stored in a database, allowing session variables to be persisted across ASP.NET process shutdowns. The main advantage of this mode is that it allows the application to balance load on a server cluster, sharing sessions between servers. This is the slowest method of session state management in ASP.NET.

ASP.NET session state enables you to store and retrieve values for a user as the user navigates ASP.NET pages in a Web application. HTTP is a stateless protocol. This means that a Web server treats each HTTP request for a page as an independent request. The server retains no knowledge of variable values that were used during previous requests. ASP.NET session state identifies requests from the same browser during a limited time window as a session, and provides a way to persist variable values for the duration of that session. By default, ASP.NET session state is enabled for all ASP.NET applications.

2. Introduction Of C#.Net

C#] (pronounced as *see sharp*) is a multi-paradigm programming language encompassing strong

typing, imperative, declarative, functional, generic, object-oriented (class-based),

and component-oriented programming disciplines.

It was developed by Microsoft within its .NET initiative and later approved as a standard by Ecma.

C# is one of the programming languages designed for the Common Language Infrastructure.

C# is a general-purpose, object-oriented programming language. Its development team is led by Anders Hejlsberg.

The most recent version is C# 7.0 which was released in 2017 along with Visual Studio 2017.

Features of C#5.0 in Visual Studio 2013

Asynchronous methods

Caller info attributes

3. Introduction of MySQL

MySQL is the most popular Open Source Relational SQL database management system. MySQL is one of the best RDBMS being used for developing web-based software applications.

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed, and supported by MySQL AB, which is a Swedish company.

Features of MySQL:-

Relational Database Management System (RDBMS)**:** MySQL is a relational database management system.

Easy to use: MySQL is easy to use. You have to get only the basic knowledge of SQL. You can build and interact with MySQL with only a few simple SQL statements.

It is secure: MySQL consist of a solid data security layer that protects sensitive data from intruders. Passwords are encrypted in MySQL.

Client/ Server Architecture: MySQL follows a client /server architecture. There is a database server (MySQL) and arbitrarily many clients (application programs), which communicate with the server; that is, they query data, save changes, etc.

Free to download: MySQL is free to use and you can download it from MySQL official website.

It is scalable: MySQL can handle almost any amount of data, up to as much as 50 million rows or more. The default file size limit is about 4 GB. However, you can increase this number to a theoretical limit of 8 TB of data.

Compatible on many operating systems: MySQL is compatible to run on many operating systems, like Novell NetWare, Windows* Linux*, many varieties of UNIX*

Chapter-3

Development Environment

System Requirements:

Hardware Requirements:

System   : Pentium core iii

Hard Disk   : 34 GB minimum.

Ram   : 2 GB minimum.

Software Requirements:

Operating system   : Windows 7 and above.

Coding Language   : ASP.NET AND C#.NET

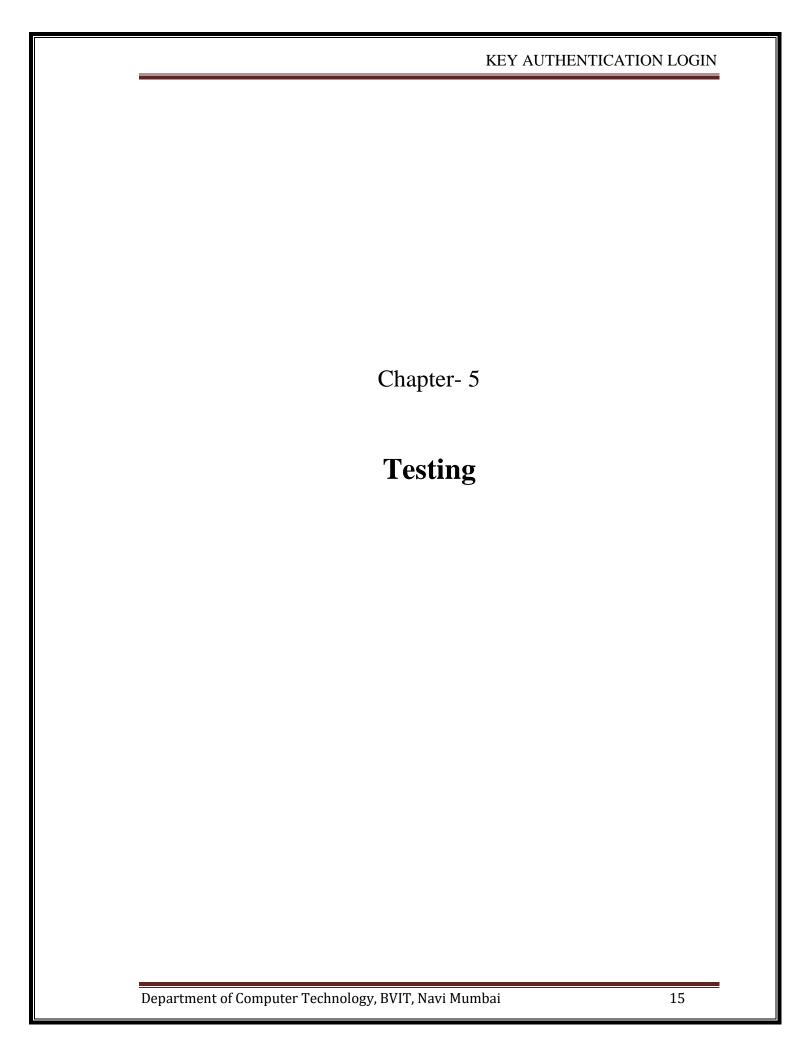Integrated development environment (IDE) – VISUAL STUDIO 2013

Chapter-4

Coding

Home.aspx.cs

This coding is for user home page in which user can do his first login and have a grid layout password/

```
using System;

using System.Collections.Generic;

using System.Linq;

using System.Web;

using System.Web.UI;

using System.Web.UI.WebControls;

using System.Data;

using System.Data.SqlClient;

using System.Configuration;


public partial class Home : System.Web.UI.Page

{

    SqlConnection
con=newSqlConnection(ConfigurationManager.AppSettings["connection"]);

    string username, accno;

    protected void Page_Load(object sender, EventArgs e)

    {

        username = Session["username"].ToString();

        Label1.Text = username;

      // accno = Session["accno"].ToString();
```

```
        if(Session["username"]==null)

        {

            Response.Redirect("Default.aspx");

        }

        else

        {

            Label1.Text = username;

            show_details();

        }

    }


    private void show_details()

    {

        con.Open();

        SqlDataAdapter da = new SqlDataAdapter("select * from registrations where
username='"+username+"'", con);

        DataSet ds = new DataSet();

        da.Fill(ds);

        con.Close();

        if(ds.Tables[0].Rows.Count > 0)

        {

            GridView1.Visible = true;

            GridView1.DataSource = ds;

            GridView1.DataBind();

        }
```

```
    }

    protected void Button1_Click(object sender, EventArgs e)

    {

        Session["username"] = null;

        Session["accno"] = null;

        Response.Redirect("Default.aspx");

    }

}
```

Chapter- 5

Testing

Testing Principles

Software testing is an Investigation conducted to provide stakeholders with information about the quality of the product or service under test.

Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risk of software implementation. Test Techniques include, but are not limited to the process of executing a program or application with the intent of finding software bugs(errors or other defects).

Software Testing can be stated as the process validating and verifying that a computer program /application/product.

     i. Meets the requirement that guided its design and development.
    ii. Works as expected.
   iii. Can be implemented with the same characteristics.
   iv. And Satisfies the needs of stakeholders.

Software testing, depending on the testing method employed, can be implemented at any time in the software development process.

Traditionally most of the test effort occurs after the requirements have been defined and the coding process has been completed, but in the Agile approaches of the test is governed by the chosen development methodology.

Testing Requirements

Testing should begin in the requirements phase of the software development life cycle. During the design phase, testers work to Determine what aspects of a design are testable and with what parameters those test work.

Test Planning:- Test Strategy, test plan, testbed creation, Since many activities will be carried out during testing, a plan is needed.

Test Development:- Test Procedures, test scenarios, test cases, test datasets, test scripts to use in testing software.

Test Execution:- Testers Execute the software based on the plans and test documents then report any error found to the development team.

Test Reporting:- Once Testing is completed, Testers generate metrics and make final reports on their effort and whether or not the software tested is ready for release.

Test Result Analysis:- Also known as Defect Analysis, is done by the Development team usually along with the client. In Order to Decide what defects should be assigned, fixed , rejected or deferred to be dealt with later.

Defect Retesting:- Once a defect has been dealt with by the development team, it is retested by the testing team.

Regression Testing:- It is Common to have a small test program built of a subset of tests, for each integration of a new, modified, or fixed software, in order to ensure that the latest delivery has not ruined anything, and that the software product as a whole is still working

Chapter-6

Testing Phases

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.

➢ 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.

➢ **System Testing**

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.

➢ **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

Chapter-7

Algorithm/Procedure

Steps:

i. First enter your details with bank

ii. Then bank will give you your email id and password

iii. Then get to the LOGIN page

iv. Enter the User Id

v. Click on the Next Button.

vi. On clicking on next button you will get a bar code which will be displayed on the left top corner.

vii. Scan that bar code with mobile.

viii. You will get a Password in mobile which will be in the form Grid Layout in random manner.

ix. Enter the Password which you have got on your mobile phone.

x. The User can view his self-transaction details and view how much he has transfer to the person.

xi. To Transfer the amount Click on "Transfer" tab.

xii. After Completion of the Activities that user wants to do, user can now choose to Close the Website (i.e., Log-out).

Chapter-8

UML Diagram

Class Diagram

Register
- 🔒Username
- 🔒password

- ◆void on create()
- ◆submiit()

QR code
- 🔒encrpt
- 🔒store details
- 🔒decrypt

- ◆function()

Authentication
- 🔒check username
- 🔒check password
- 🔒verify password position

- ◆authentication success()

Use-Case Diagram

Registration

Login

Scan QR Code

Enter Password through grid

user

Admin

LogOut

Generate QR COde

Check Authentication

Sequence diagram

User	System	Admin

Enter Registration details

Verify Details

Registration Successful

Generate QR Code

scan QR Code

Scan Successful

Enter Password on blank grid

Match Password

Authentication Successful

Chapter-9

User Manual

1.**Main Page**

2.**Registration Page**

3.**While Entering Username**

4. **Clicking On The Next Button And Barcode Will Be Generted**

5. **Typing Password In Grid**

6. **Successful Login**

7. **Facilities**

8. **Transfer**
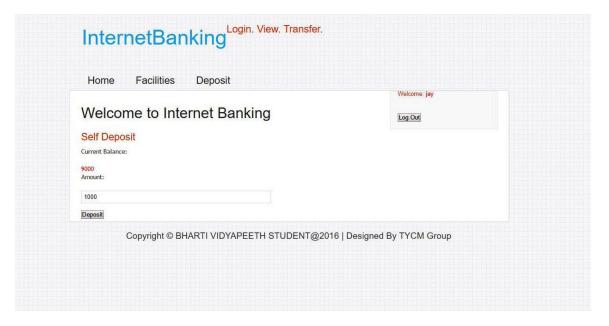
09. **Transfer Money To Specific Person**
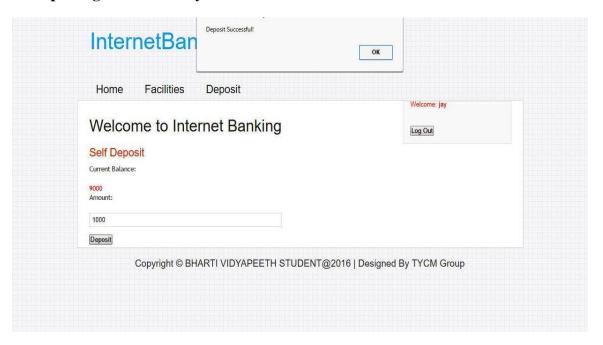

11. **Transfer Money to Specific Person Is Successful**

12 Transfer Money to Your Account (Self Deposit)
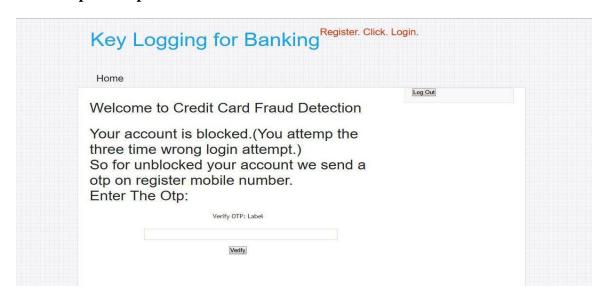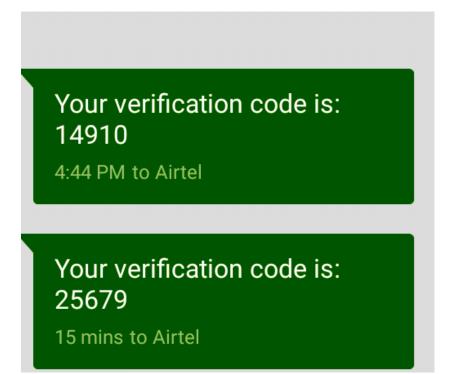

13. How Much Money You Want To Deposit

14.**Deposting Is Successfully Done In Your Account**
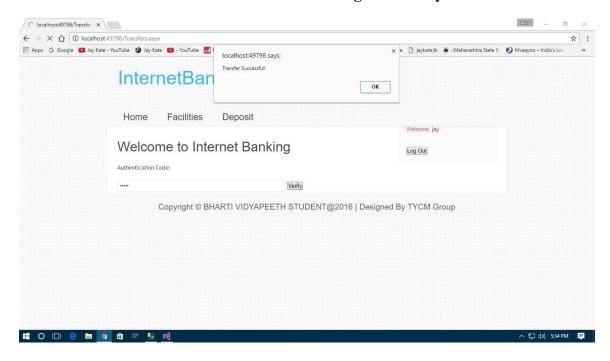

15.**Concept Of Otp If Your Account Is Blocked.**
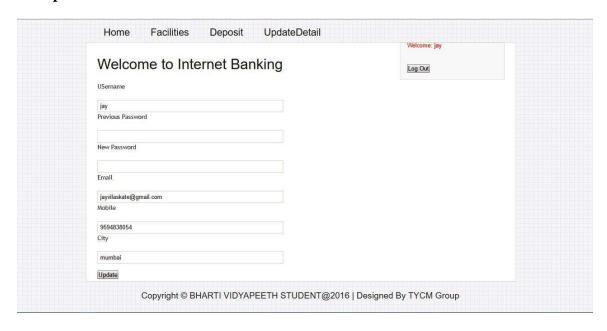
16.**Recevied Otp On Your Mobile**

Your verification code is:
14910

4:44 PM to Airtel

Your verification code is:
25679

15 mins to Airtel

17.**Entering Password Of OTP**

InternetBanking Login. View. Transfer.

Home   Facilities   Deposit

Welcome: jay

Welcome to Internet Banking

Log Out

Authentication Code:

Verify

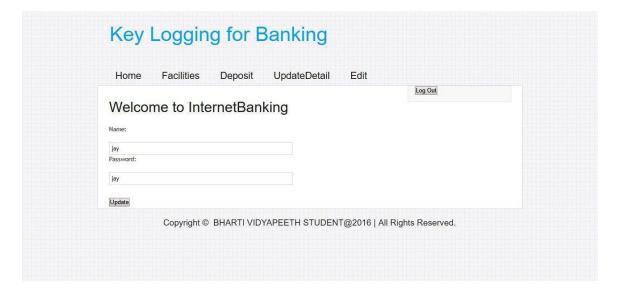Copyright © BHARTI VIDYAPEETH STUDENT@2016 | Designed By TYCM Group

18.OTP Will Be Their When You Are Transfering The Money

19. Update Details

20. Changed Password Of Your Account

Advantages and Disadvantages

Advantages

1. Very Secure For The User
2. Not Easy To Do Shoulder Surfing
3. Not So Much Complicated
4. Easy Accessible To The User

Disadvantages

1. UC –BROWSER app Should Be there in Our Mobile When Your Scanning The Bar Code.
2. Difficult To Put The Alphabets.
3. Difficult To Understand The Matrix.

Conclusion

The "KEY AUTHENTICATION LOGIN" Software Should be implemented in the baking system because normal type of authentication have some risk and it is very difficult for the user to get his account in the normal mode so this type of first time authentication which bank will give to the user which will be in the form of grid and very secure for him in the future purpose also. Further extensions to this system can be made required with minor modification.

This system has been tested under all criteria. The application executes successfully by fulfilling the methodologies.