MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN

INTERNATIONAL INFORMATION TECHNOLOGY UNIVERSITY JSC

FACULTY OF INFORMATION TECHNOLOGY

Development of the software for company database security

Done by: Iskakova Moldir

Group: CSSE-122k

Supervisor: Amanzholova S.T

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Content

- Goals and tasks
- Overview of similar analogues
- Tools for tasks
- Architecture of program
- Prototype of program

Goals and tasks

Goals are:

- Protection of relational database against unauthorized access and prevent forms of unlawful interference with information resources;
- provide receiving of general and detailed reports about results of the database work ;
- provide receiving information without significant delay;

Tasks are:

- Implement user-client architecture
- Implement database and do some cryptography operations
- Monitoring database activity of users
- Two level of authentification

- **Actuality**
  In the modern world databases are widely used in application software and web applications, providing a convenient solution for storing information. In some cases, this information may be harvested, so it needs to be protected.

- **Novelty**
  Software provide the ability to protect database through cryptography and two level authentication.

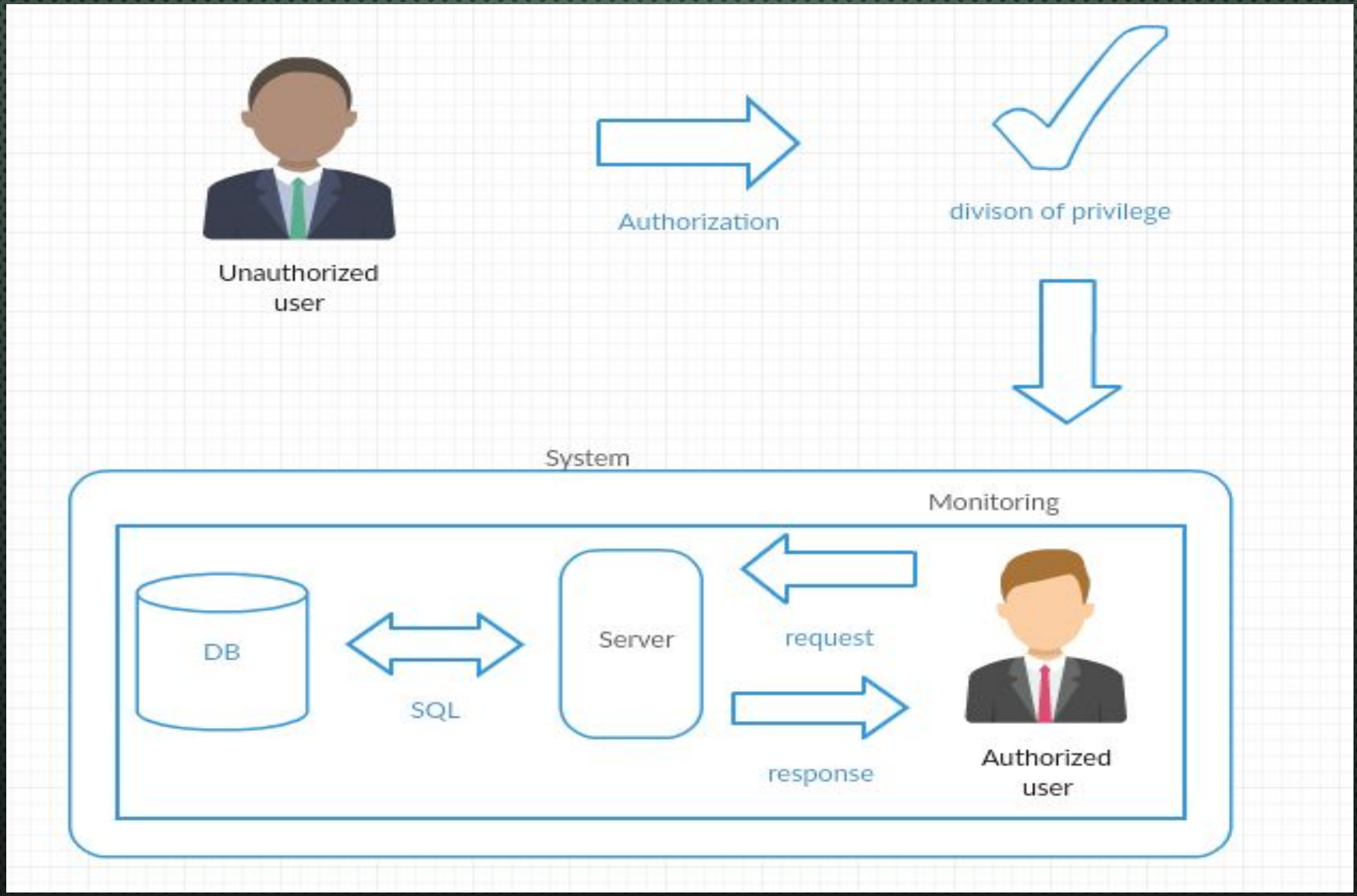
1.the ability to selectively encrypt the database
2. the possibility of monitoring.

McAfee

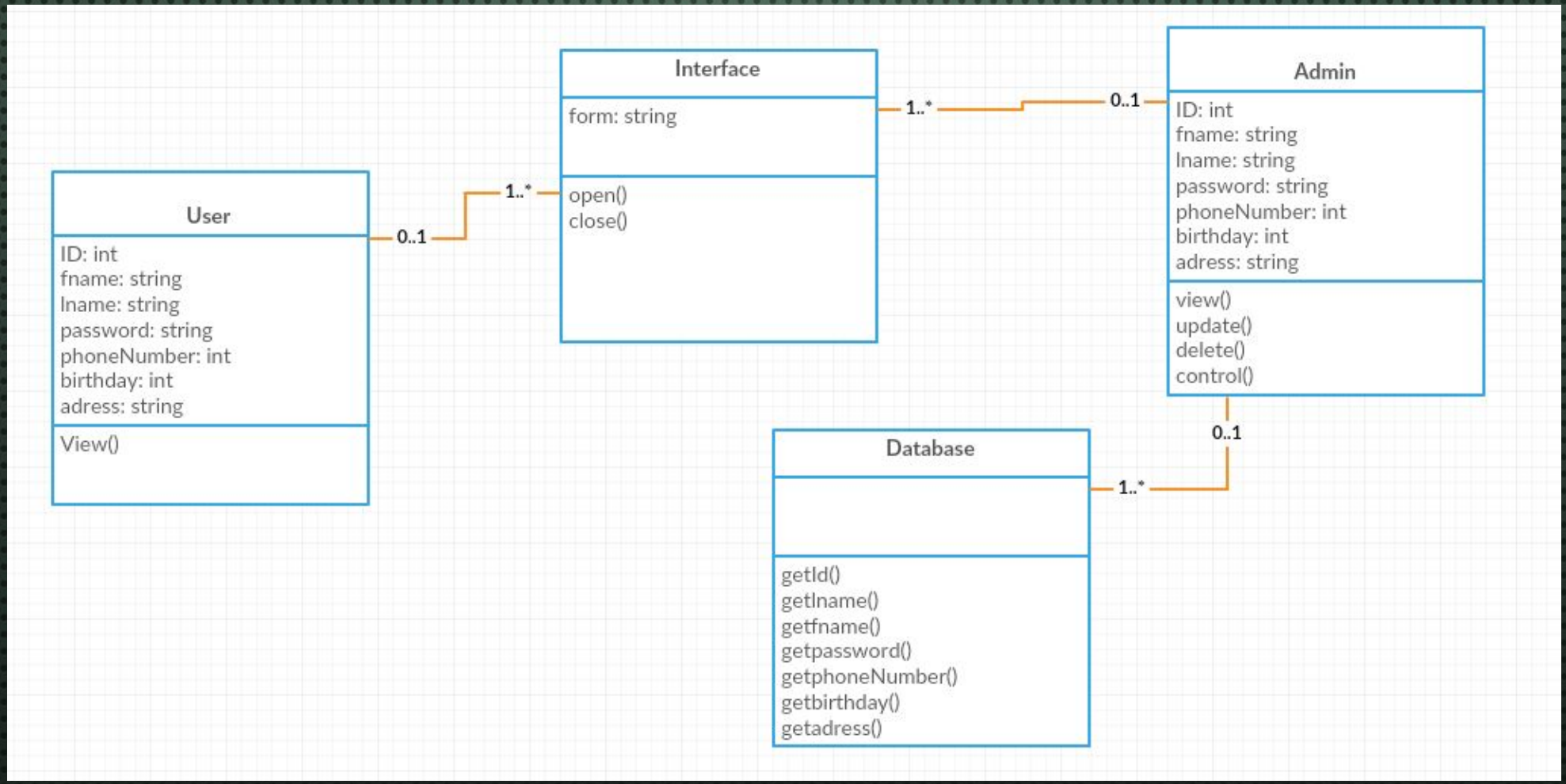
1. Two-factor authentication system
2. Centralized management of authentication functions.

- **Easy to deploy and manage**
- **Provide a complete collection of information**
- **Reducing risk by preventing attacks**
- **Management of database security with a centralized console**

Architecture of program



CLASS DIAGRAM OF PROJECT



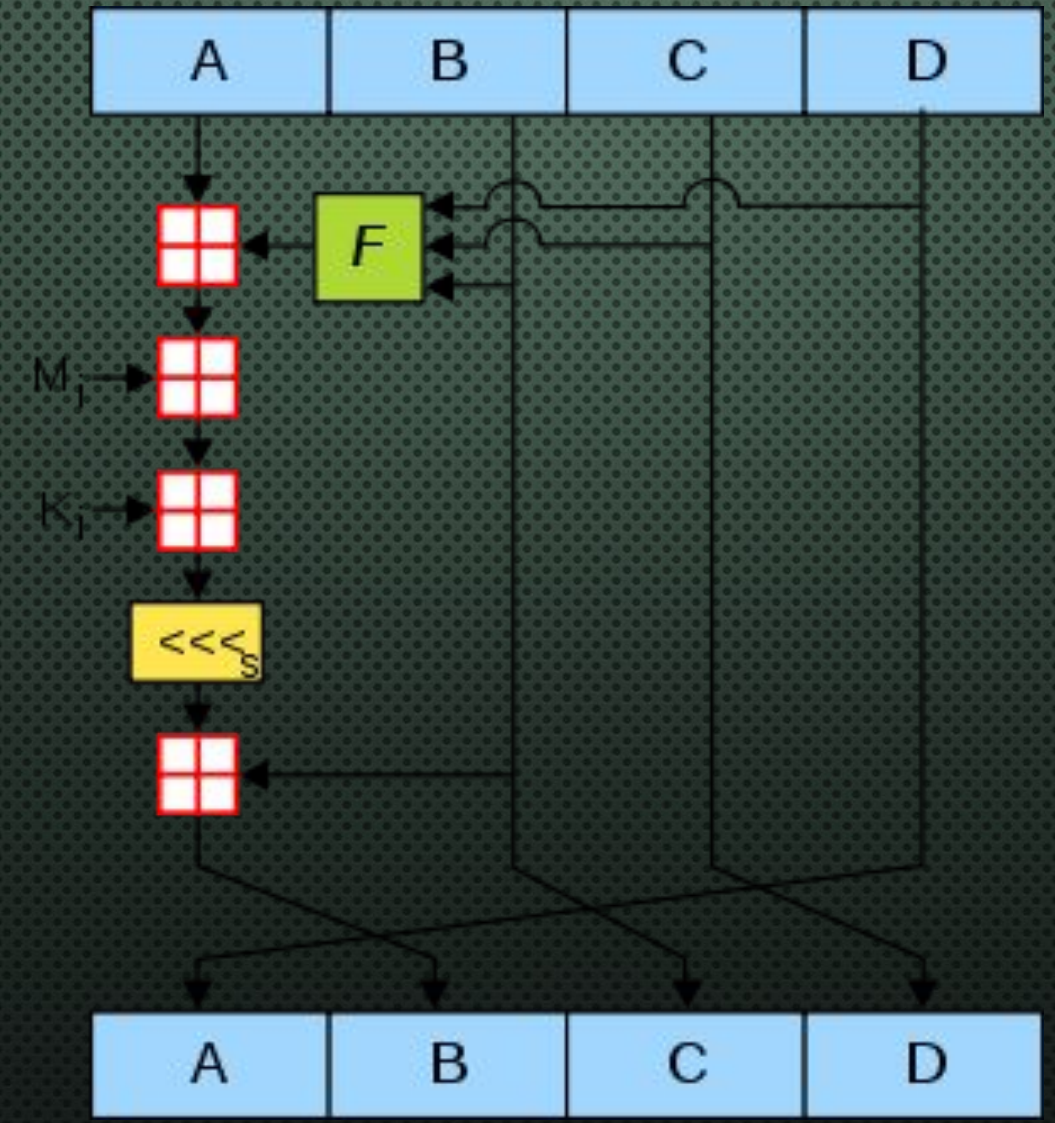
1) DBMS :

2) Programming language :

3) IDE :

4) Web-Server:

ALGORITHM OF CRYPTOGRAPHY MD5

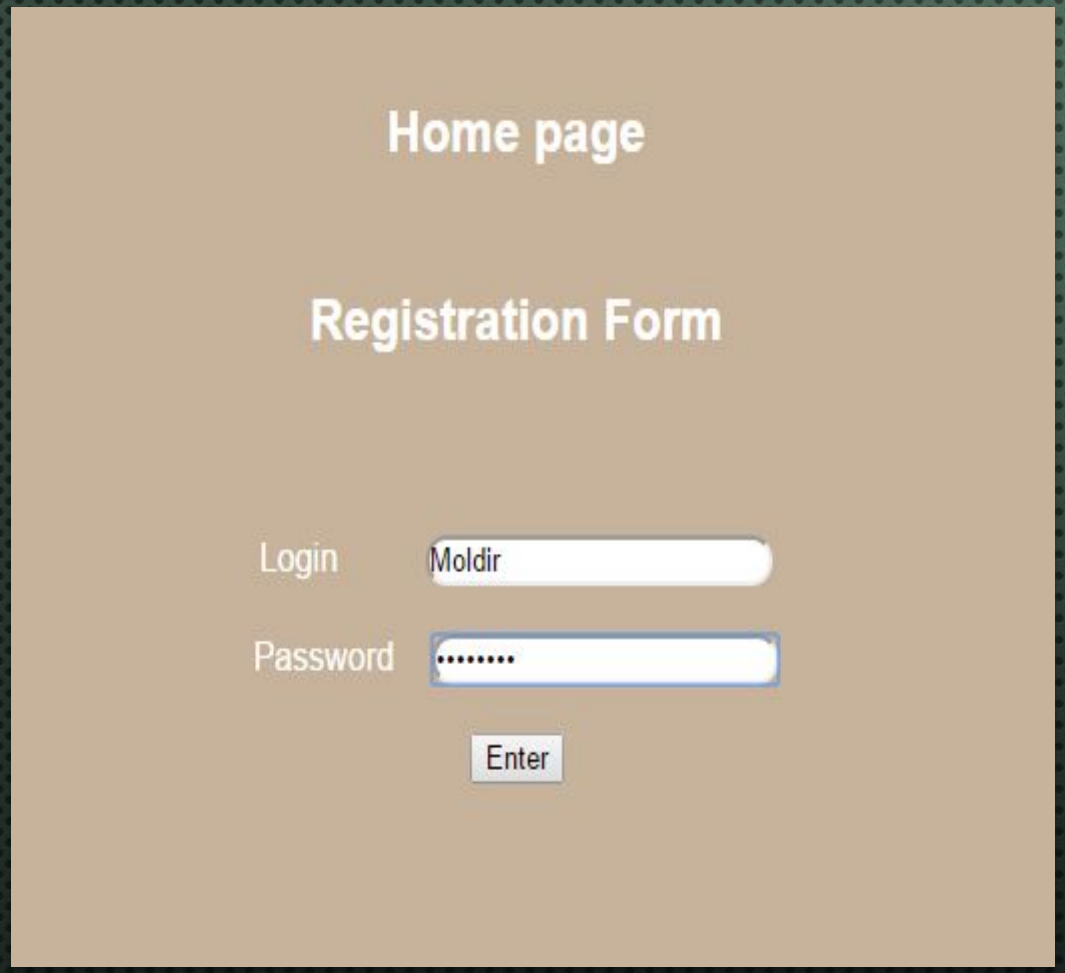


Prototype of program: “Home page”


```
<html>
<body>
<style>
   body {

    background: #c7b39b ;
    color:  #343d46;
    background-size: cover;
   }
</style>
<h1>  Home page</h1>
<p><big><a
href="login.jsp">Login</a></big></p>
<p><big><a
href="register.jsp">Registration
Form</a></big></p>
</body>
</html>
```

Prototype of program: “Login page”




```
label class="sr-only login-label"
for="exampleInputEmail2">Login</label>
      <input type="text" class="form-control"
id="exampleInputEmail2" name="fname"
placeholder="Login">
    </div>
  </div>
  <div class="form-group">
      <label class="sr-only pass-label"
for="exampleInputPassword2">Password</label>
    <input type="password" class="form-control"
id="exampleInputPassword2" name="password"
placeholder="Password">
   </div>
  <div class="checkbox">
  </div>
   <p class="login-submit">
      <button type="submit"
class="login-button">Enter</button>
    </p>
```

Prototype of program: “Registration page”

```
<LABEL FOR="FIRSTNAME" CLASS=" CONTROL-LABEL">FIRST NAME</LABEL>
                        <INPUT TYPE="TEXT" NAME="FNAME" ID="FNAME" PLACEHOLDER="" CLASS="FORM-CONTROL"
AUTOFOCUS>
                        </BR></BR>
                        <LABEL FOR="LASTNAME" CLASS=" CONTROL-LABEL">LAST NAME</LABEL>
                        <INPUT TYPE="TEXT" NAME="LNAME" ID="LNAME" PLACEHOLDER="" CLASS="FORM-CONTROL"
AUTOFOCUS>
                        </BR></BR>
                        <LABEL FOR="FIRSTNAME" CLASS=" CONTROL-LABEL">EMAIL</LABEL>
                        <INPUT TYPE="TEXT" NAME="EMAIL" ID="EMAIL" PLACEHOLDER="" CLASS="FORM-CONTROL"
AUTOFOCUS>
                        </BR></BR>
                        <LABEL FOR="LASTNAME" CLASS=" CONTROL-LABEL">PHONE</LABEL>
                        <INPUT TYPE="TEXT" NAME="PHONE" ID="PHONE" PLACEHOLDER="" CLASS="FORM-CONTROL"
AUTOFOCUS>
                        </BR></BR>
                          <LABEL FOR="FIRSTNAME" CLASS=" CONTROL-LABEL">BIRTH DATE</LABEL>
                        <INPUT TYPE="TEXT" NAME="BIRTH" ID="BIRTH" PLACEHOLDER="" CLASS="FORM-CONTROL"
AUTOFOCUS>
                        </BR></BR>
                        <LABEL FOR="LASTNAME" CLASS=" CONTROL-LABEL">PASSWORD</LABEL>
                        <INPUT TYPE="TEXT" NAME="PASSWORD" ID="PASSWORD" PLACEHOLDER=""
CLASS="FORM-CONTROL" AUTOFOCUS>
                        </BR></BR>
                        <LABEL FOR="FIRSTNAME" CLASS=" CONTROL-LABEL">ADDRESS</LABEL>
                        <INPUT TYPE="TEXT" NAME="ADDRESS" ID="ADDRESS" PLACEHOLDER=""
CLASS="FORM-CONTROL" AUTOFOCUS>
                        </BR></BR>
```

Home page

Login Form

First name

Last name

Email

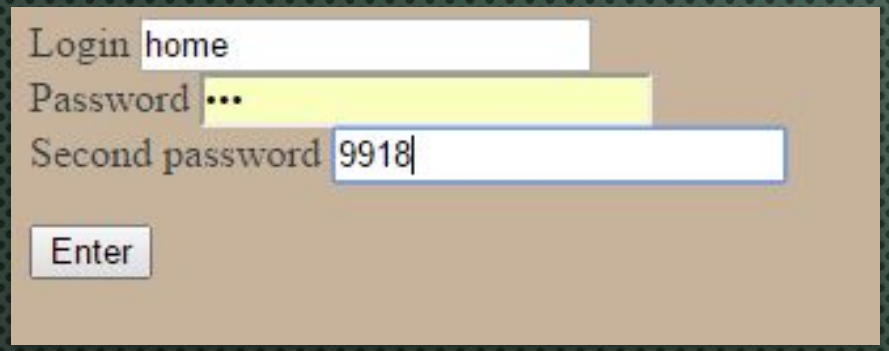
Phone

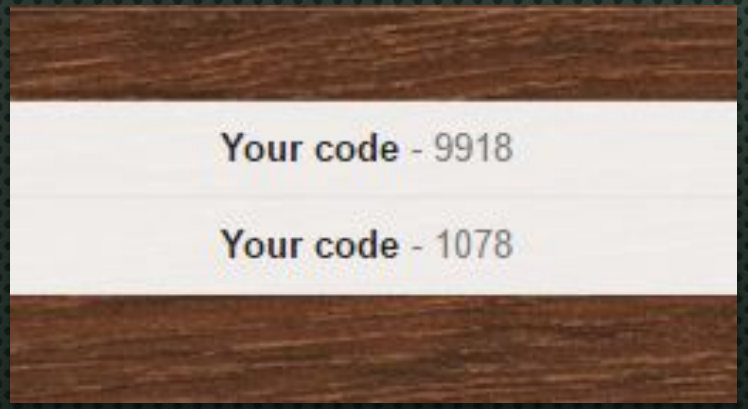
Birth date

Password

Address

Prototype of program: “second password page”






```
UserDAOImpl dAOImpl = new UserDAOImpl();
String fname = request.getParameter("fname");
String password = request.getParameter("password");
String code = request.getParameter("code");
System.out.println("Welcome" + fname + password);
if (fname != null && password != null && code!=null) {
      if (dAOImpl.CheckLogin(fname, password)) {
        if (dAOImpl.checkPass(code)){
        Users u = dAOImpl.getUserDataByLogin(fname);
        request.getSession().setAttribute("users", u);
    }request.getRequestDispatcher("/userpage.jsp").forward(request,
response); }
      else {
            response.sendRedirect("index.jsp?error=1");
        }
    }
  else {
        response.sendRedirect("index.jsp?error=1");
```

Prototype of program: “Database”

Fname	email	Phone	Address	Birthday
Nursultan	nn@gmail.com	[B@1ffbdb92	123	123
Asygatbek	kamila@gmail.com	[B@b2e4078	Kal	14.10.2004
abi	zhasmin@gmail.com	[B@7a482a36	grt	2345
Saur	Tamerlan@gmail.com	[B@3bae49a6	almaty	5432
Zhailau	iskakovamolya@gmail.com	[B@681f9700	almaty	987654
Tab	Baurzhan@mail.com	[B@114b37fb	sdfgh	12345678
MoldirISKAKOVA	iskakovamolya@gmail.com	[B@2a69b67e	ASDFGH	23456
Zhanabay	gulnaz@gmail.com	[B@634329ec	rtyu	87654
user	user@mail.ru	[B@77700513	dfgghjk	2345678
16164	iskakovamolya@gmail.com	[B@3fcc10e9	sdxz	5678
Timur	timur@gmail.com	[B@58718b28	mol	019
newuser	iskakovamolya@gmail.com	[B@2287c583	newuser	01.01.01
kastro	iskakovamolya@gmail.com	[B@5528145d	navoi	01.01.01
Isak	iskakovamolya@gmail.com	[B@a3c0d49	Astana	01.01.95
home	iskakovamolya@gmail.com	[B@5ec0efed	fbvc	43234
admin	iskakovamolya@gmail.com	[B@42f7826b		
toleu	iskakovamolya@gmail.com	[B@5768fc94	burun	456789
Toleubek	iskakovamolya@gmail.com	[B@3dd4e575	burun	4543

Edit data

Edit privilege | My profile

Conclusion

Goals and objectives of this diploma project have been successfully carried out. It was conducted market analysis and comparison of analogues that helped to create more high-quality product that helps protect the database. The project was realized on the windows platform using the javaee programming language. During the implementation of the project the analysis of methods, approaches, market situation analysis, labor safety and making the performance of the application were worked in the most optimal way.

References:

1) "Card-Not-Present Fraud: A Primer on Trends and Transaction Authentication Processes," Smart Card Alliance Payments Council white paper, February 2014, http://www.emv-connection.com/card-not-present-fraud-aprimer-on-trends-and-transaction-authentication-processes/

2) De Borde, Duncan Two-factor authentication.(2007) Siemens Insight Consulting, 1221,502-509

3) EMV Payment Tokenisation Specification – Technical Framework," Version 1.0, EMVCo, March 2014, http://www.emvco.com/specifications.aspx?id=263

4) Emerging security threats from every which way (2015) David Strom,509,277-281

5) The end of strong password-only security, TMT Technology Predictions 2013, Deloitte,http://www2.deloitte.com/global/en/pages/technology-media-and-telecommunications/articles/tmt-technologypredictions-2013-end-of-strong-passwords.html