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2.1P

Task1

The lab was completed and generated the following table when run:

#	USERID	NAME	PASSWORD	EMAIL	PHONE	ADDRESS	SECQN	SECANS
1	000001	Wei Lai	123456	wlai@swin.edu.au	9876543210	Swinburne EN510b	What is my name?	Wei
2	000002	James T. Kirk	234567	jkirk@swin.edu.au	8765432109	Swinburne EN511a	What is my name?	James
3	000003	Sheldon Cooper	345678	scooper@swin.edu.au	7654321098	Swinburne EN512a	What is my last name?	Cooper
4	000004	Clark Kent	456789	ckent@swin.edu.au	6543210987	Swinburne EN513a	What is my last name?	Kent
5	000005	Harry Potter	567890	hpotter@swin.edu.au	6543210987	Swinburne EN514a	What is my last name?	Potter
6	000007	Man Lai	654321	wlai@swin.edu.au	9876543210	Swinburne EN510b	What is my name?	Wei

Task 2

The required functions for CRUD operations where created.

getRecord():

```
public Myuser getRecord(String userId) {
    Connection cnnct = null;
    PreparedStatement pStmnt = null;
    Myuser result = null;

    try {
        cnnct = getConnection();
        String stmnt = "SELECT * FROM MYUSER WHERE UserID = ?";
        pStmnt = cnnct.prepareStatement(stmnt);
        pStmnt.setString(1, userId);
        ResultSet rs = pStmnt.executeQuery();
        if (rs.next()) {
            result = new Myuser(
                    rs.getString(1),
                    rs.getString(2),
                    rs.getString(3),
                    rs.getString(4),
                    rs.getString(5),
                    rs.getString(6),
                    rs.getString(7),
                    rs.getString(8)
            );
        }
```

… (omitted catch and finally for brevity)

```
    return result;
}
```

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createRecord():

```
public boolean createRecord(Myuser myuser) {
    Connection cnnct = null;
    PreparedStatement pStmnt = null;
    boolean result = false;

    try {
        cnnct = getConnection();
        if (getRecord(myuser.getUserid()) == null) {
            String stmnt = "INSERT INTO MYUSER VALUES(?, ?, ?, ?, ?, ?, ?, ?)";
            pStmnt.close();
            pStmnt = cnnct.prepareStatement(stmnt);
            pStmnt.setString(1, myuser.getUserid());
            pStmnt.setString(2, myuser.getName());
            pStmnt.setString(3, myuser.getPassword());
            pStmnt.setString(4, myuser.getEmail());
            pStmnt.setString(5, myuser.getPhone());
            pStmnt.setString(6, myuser.getAddress());
            pStmnt.setString(7, myuser.getSecQn());
            pStmnt.setString(8, myuser.getSecAns());
            pStmnt.executeUpdate();

            result = true;
        } else {
            result = false;
        }
```

...

```
    return result;
}
```

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updateRecord:

```
public boolean updateRecord(Myuser myuser){
    Connection cnnct = null;
    PreparedStatement pStmnt = null;
    boolean result = false;

    if (getRecord(myuser.getUserid()) == null){
        try {
            cnnct = getConnection();
            String stmnt = "UPDATE MYUSER SET UserId = ?, "
                    + "Name = ?, "
                    + "Password = ?, "
                    + "Email = ?, "
                    + "Phone = ?, "
                    + "Address = ?, "
                    + "SecQn = ?, "
                    + "SecAns = ? WHERE UserId = ?";
            pStmnt = cnnct.prepareStatement(stmnt);
            pStmnt.setString(1, myuser.getUserid());
            pStmnt.setString(2, myuser.getName());
            pStmnt.setString(3, myuser.getPassword());
            pStmnt.setString(4, myuser.getEmail());
            pStmnt.setString(5, myuser.getPhone());
            pStmnt.setString(6, myuser.getAddress());
            pStmnt.setString(7, myuser.getSecQn());
            pStmnt.setString(8, myuser.getSecAns());
            pStmnt.setString(9, myuser.getUserid());
            pStmnt.executeUpdate();

            result = true;
```

…

```
    return result;
}
```

deleteRecord:

```
public boolean deleteRecord(Myuser myuser) {
    Connection cnnct = null;
    PreparedStatement pStmnt = null;
    boolean result = false;
    String userId = myuser.getUserid();

    if (getRecord(userId) == null){
        try {
            cnnct = getConnection();
            String stmnt = "DELETE FROM MYUSER WHERE UserId = ?";
            pStmnt = cnnct.prepareStatement(stmnt);
            pStmnt.setString(1, userId);
            pStmnt.executeUpdate();

            result = true;
```

…

```
    return result;
}
```

Task 3

A simple console menu (similar to last pass task) was created to test each of the operations created above.

Getting a record:

```
Please choose what operation you would like to perform:
1: Get
2: Create
3: Update
4: Remove
5: Exit

1
Please enter the UserId of the user you would like to retrieve:

000004
UserId: 000004
Name: Clark Kent
Password: 456789
Email: ckent@swin.edu.au
Phone: 6543210987
Address: Swinburne EN513a
Secret Qustion: What is my last name?
Secret Answer: Kent
```

Creating a record:

```
Please choose what operation you would like to perform:
1: Get
2: Create
3: Update
4: Remove
5: Exit

2

 Please enter userId:
000009

 Please enter name:
Cyrus

 Please enter password:
pass12

 Please enter email:
me@mail.cpm

 Please enter phone:
1231234

 Please enter address:
123 place st

 Please enter secret question:
Cat name

 Please enter secret answer:
Fluffy
Record created successfully.
```

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```
Please choose what operation you would like to perform:
1: Get
2: Create
3: Update
4: Remove
5: Exit

1

 Please enter the UserId of the user you would like to retrieve:
000009
UserId: 000009
Name: Cyrus
Password: pass12
Email: me@mail.cpm
Phone: 1231234
Address: 123 place st
Secret Qustion: Cat name
Secret Answer: Fluffy
```

Updating a record:

```
Please choose what operation you would like to perform:
1: Get
2: Create
3: Update
4: Remove
5: Exit

3

 Please enter userId:
000009

 Please enter name:
Cyrus

 Please enter password:
12pass

 Please enter email:
you@mail.com

 Please enter phone:
12312312

 Please enter address:
321 street rd

 Please enter secret question:
Dog name

 Please enter secret answer:
Max

 Record updated successfully.
```

```
Please choose what operation you would like to perform:
1: Get
2: Create
3: Update
4: Remove
5: Exit

1

 Please enter the UserId of the user you would like to retrieve:
000009
UserId: 000009
Name: Cyrus
Password: l2pass
Email: you@mail.com
Phone: 12312312
Address: 321 street rd
Secret Qustion: Dog name
Secret Answer: Max
```

Deleting a record:

```
Please choose what operation you would like to perform:
1: Get
2: Create
3: Update
4: Remove
5: Exit

4

 Please enter the UserId of the user you would like to delete:
000009

 User deleted succussfully.


Please choose what operation you would like to perform:
1: Get
2: Create
3: Update
4: Remove
5: Exit

1

 Please enter the UserId of the user you would like to retrieve:
000009

No user with that id could be found.
```

Task 4:

4.1 The role of the Myuser class is that of a data transfer object. It does not directly change the database, it only carries the information that is used when the database is changed. The MyDB class is the data access object as it contains the methods that send the queries to the database and has a direct effect on the state of the database.

4.2 If a program calls the “myuser.setName()” function, there will be no change in the database. This is just changing the Myuser object, the DAO would still be responsible for changing the database with this new data.

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4.3 Even if the Myuser (DTO) class is changed in the DAO (in this case MyDB) still no change has been made until the DAO sends that change to the database through its interface.

Code can be found for further review at:
https://github.com/CyrusEdgren/Secure_Scalable_Software/tree/master/2.1P