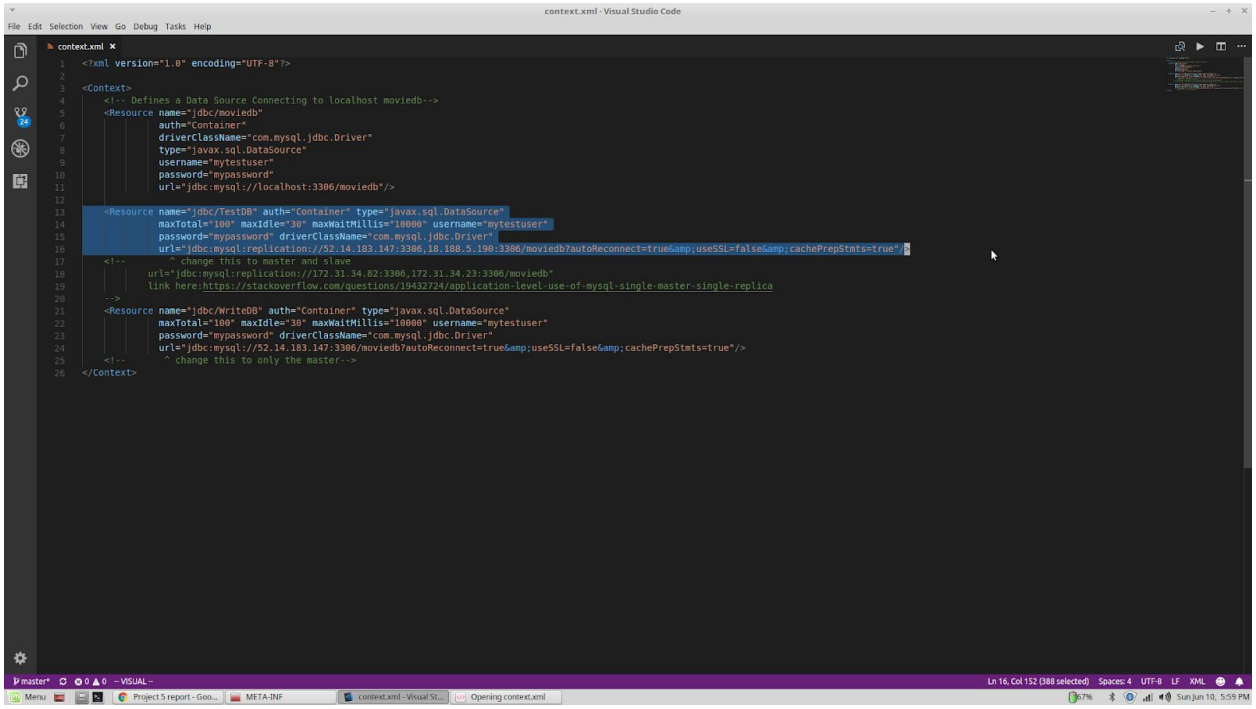
Task 1

- How did you use connection pooling?

I used connection pooling in to distribute the load on the mySQL transaction. The read is distribute to my master and my slave mySQL instances. In my context.xml, i used a replication in order to distribute the load to the slave and master. Shown here:



- File name, line numbers as in Github

AddInfo - 63
AddMovie - 73
AddStar - 56
CreditCard - 51
Login - 76
MovieAutoComplete - 95
MovieListServlet - 84
MovieListNoPS - 83
MovieListNoPool - 87
SalesInsert - 64
Stars - 51

- Snapshots showing use in your code

context.xml - Visual Studio Code

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context.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>

<Context>
    <!-- Defines a Data Source Connecting to localhost moviedb-->
    <Resource name="jdbc/moviedb"
              auth="Container"
              driverClassName="com.mysql.jdbc.Driver"
              type="javax.sql.DataSource"
              username="mytestuser"
              password="mypassword"
              url="jdbc:mysql://localhost:3306/moviedb"/>

    <Resource name="jdbc/TestDB" auth="Container" type="javax.sql.DataSource"
              maxTotal="100" maxIdle="30" maxWaitMillis="10000" username="mytestuser"
              password="mypassword" driverClassName="com.mysql.jdbc.Driver"
              url="jdbc:mysql:replication://52.14.183.147:3306,18.188.5.190:3306/moviedb?autoReconnect=true&amp;useSSL=false&amp;cachePrepStmts=true"/>
    <!--        ^ change this to master and slave
            url="jdbc:mysql:replication://172.31.34.82:3306,172.31.34.23:3306/moviedb"
            link here:https://stackoverflow.com/questions/19432724/application-level-use-of-mysql-single-master-single-replica
    -->
    <Resource name="jdbc/WriteDB" auth="Container" type="javax.sql.DataSource"
              maxTotal="100" maxIdle="30" maxWaitMillis="10000" username="mytestuser"
              password="mypassword" driverClassName="com.mysql.jdbc.Driver"
              url="jdbc:mysql://52.14.183.147:3306/moviedb?autoReconnect=true&amp;useSSL=false&amp;cachePrepStmts=true"/>
    <!--        ^ change this to only the master-->
</Context>
```

MovieListServlet.java - Visual Studio Code

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MovieListServlet.java

```java
        if (title != null && titlesearch != null)
            title = "%" + title;
        title = (title != null) ? title : "";

        System.out.println("TitleTemp = "+ title);
        year = (year != null) ? year : "";
        director = (director != null) ? director : "";
        star_name = (star_name != null) ? star_name : "";

        System.out.println("going to movieServlet");

        // Output stream to STDOUT
        PrintWriter out = response.getWriter();

        try {
            Context initCtx = new InitialContext();
            Context envCtx = (Context) initCtx.lookup("java:comp/env");
            // Look up our data source
            if (envCtx == null)
                throw new Exception("envCtx is NULL");
            DataSource ds = (DataSource) envCtx.lookup("jdbc/TestDB");
            // Get a connection from dataSource
            Connection dbcon = ds.getConnection();
            String query = "";
            if (genre != null) {
                System.out.println("going into Genre!!!!!");
                query = ("SELECT m.id, m.title, m.year, m.director, GROUP_CONCAT(DISTINCT g.name separator ',') AS genres, GROUP_CONCAT(DISTINCT s.name, ',', s.id separator ',') AS starNameID, r.rat
                        "   FROM movies m, stars_in_movies sim, stars s, genres g, genres_in_movies gim, ratings r\r\n" +
                        "   WHERE m.id = sim.movieid AND s.id = sim.starId AND g.id = gim.genreId AND m.id = gim.movieId AND m.id = r.movieId\r\n" +
                        "   AND g.name LIKE ? \r\n" +
                        "   GROUP BY m.id, m.title, m.year, m.director, r.rating \r\n" +
                        "   LIMIT 1000");

            } else {
                query = ("SELECT m.id, m.title, m.year, m.director, GROUP_CONCAT(DISTINCT g.name separator ',') AS genres, GROUP_CONCAT(DISTINCT s.name, ',', s.id separator ',') AS starNameID, r.rat
                        "FROM movies m, stars_in_movies sim, stars s, genres g, genres_in_movies gim, ratings r\n" +
                        "WHERE m.id = sim.movieid AND s.id = sim.starId AND g.id = gim.genreId AND m.id = gim.movieId AND m.id = r.movieId \n" +
                        "AND (match (m.title) against ( ? in boolean mode) OR ( ? LIKE m.title) OR ed(m.title, ?) <= 3) AND m.director LIKE ? AND m.year LIKE ?\n" +
                        "AND s.name LIKE ? \n" +
                        "GROUP BY m.id, m.title, m.year, m.director, r.rating\n" +
                        "order by (ed( ? ,m.title)) asc\n" +
                        "LIMIT 1000");
            }
            // Declare our statement
            PreparedStatement statement = dbcon.prepareStatement(query);

                        // Set the parameter represented by "?" in the query to the id we get from url,
                        // num 1 indicates the first "?" in the query
            if (genre != null) {
                genre = "%" + genre + "%";
```

Classpath is incomplete. Only syntax errors will be reported

Source: Language Support for ... More Information Don't Show Again

MovieListServletNoPool.java - Visual Studio Code

File Edit Selection View Go Debug Tasks Help

MovieListServletNoPool.java

```java
        // Retrieve parameter id from url request.
        String title = request.getParameter("movie_title");
        String year = request.getParameter("movie_year");
        String director = request.getParameter("director");
        String star_name = request.getParameter("star_name");
        String genre = request.getParameter("genre");
        String orderBy = request.getParameter("order_by");
        String frmSearch = request.getParameter("s");

        String terms = returnQueryString(title);
        if (title != null && frmSearch != null)
            title = "%" + title;
        title = (title != null) ? title : "";

        System.out.println("TitleTemp = "+ title);
        year = (year != null) ? year : "";
        director = (director != null) ? director : "";
        star_name = (star_name != null) ? star_name : "";

        System.out.println("going to movieServlet");

        // Output stream to STDOUT
        PrintWriter out = response.getWriter();

        try {
            Context initCtx = new InitialContext();
            Context envCtx = (Context) initCtx.lookup("java:comp/env");
            // Look up our data source
            if (envCtx == null)
                throw new Exception("envCtx is NULL");
            DataSource ds = (DataSource) envCtx.lookup("jdbc/moviedb");
            // Get a connection from dataSource
            Connection dbcon = ds.getConnection();
            String query = "";
            if (genre != null) {
                System.out.println("going into Genre!!!!!");
                query = ("SELECT m.id, m.title, m.year, m.director, GROUP_CONCAT(DISTINCT g.name separator ',') AS genres, GROUP_CONCAT(DISTINCT s.name, ',', s.id separator ',') AS starNameID, r.rat
                        "   FROM movies m, stars_in_movies sim, stars s, genres g, genres_in_movies gim, ratings r\r\n" +
                        "   WHERE m.id = sim.movieid AND s.id = sim.starId AND g.id = gim.genreId AND m.id = gim.movieId AND m.id = r.movieId\r\n" +
                        "   AND g.name LIKE ? \r\n" +
                        "   GROUP BY m.id, m.title, m.year, m.director, r.rating \r\n" +
                        "   LIMIT 1000");

            } else {
                query = ("SELECT m.id, m.title, m.year, m.director, GROUP_CONCAT(DISTINCT g.name separator ',') AS genres, GROUP_CONCAT(DISTINCT s.name, ',', s.id separator ',') AS starNameID, r.rat
                        "FROM movies m, stars_in_movies sim, stars s, genres g, genres_in_movies gim, ratings r\n" +
                        "WHERE m.id = sim.movieid AND s.id = sim.starId AND g.id = gim.genreId AND m.id = gim.movieId AND m.id = r.movieId \n" +
                        "AND (match (m.title) against ( ? in boolean mode) OR ( ? LIKE m.title) OR ed(m.title, ?) <= 3) AND m.director LIKE ? AND m.year LIKE ?
                        "AND s.name LIKE ? \n" +
```

Classpath is incomplete. Only syntax errors will be reported

Source: Language Support for ... More Information Don't Show Again

master* 0↓ 1↑ 0 0 – VISUAL – Ln 87, Col 72 (272 selected) Tab Size: 4 UTF-8 LF Java 1

Menu Project 5 report -... apache-tomcat-8... src CS122b Terminal [eclipse-workspa... Terminal JDBCNoPoolResu... Network MovieListServlet... 44% Sun Jun 10, 9:13 PM

MovieListServletNoPS.java - Visual Studio Code

File Edit Selection View Go Debug Tasks Help

MovieListServletNoPS.java

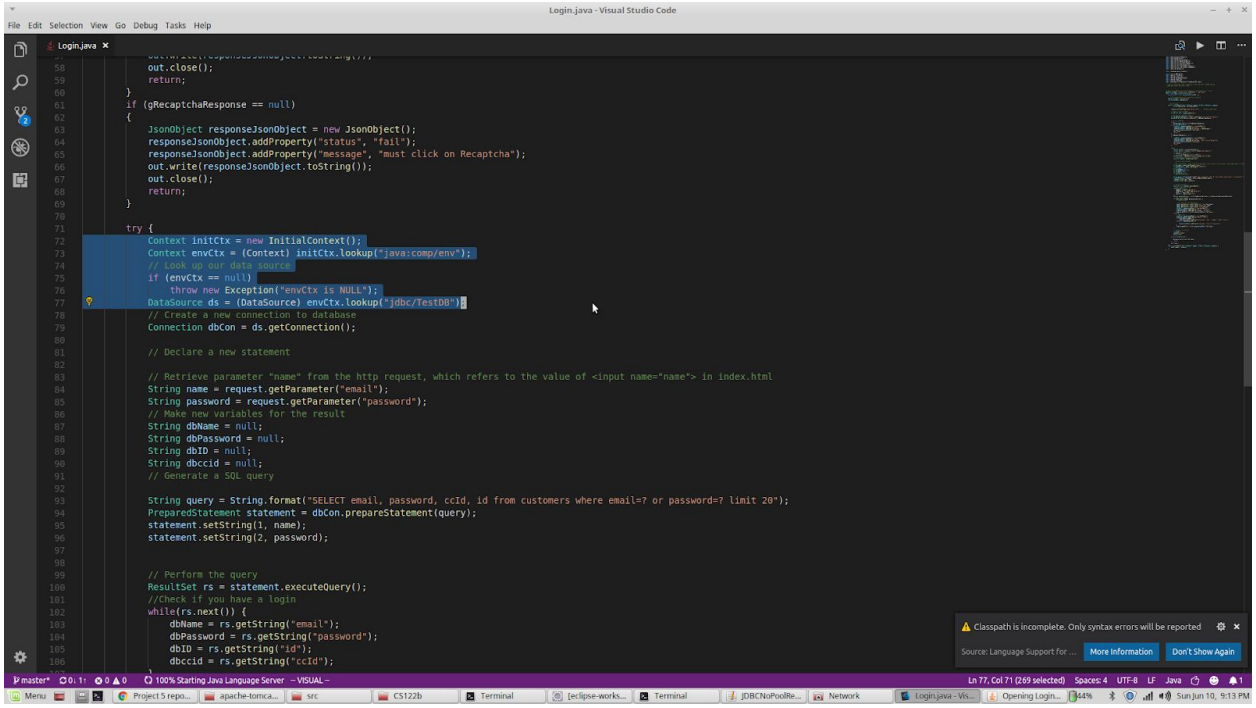
```java
        String frmSearch = request.getParameter("s");
        String title_cpy = title;
        String terms = returnQueryString(title);
        if (title != null && frmSearch != null)
            title = "%" + title;
        title = (title != null) ? title : "";

        System.out.println("TitleTemp = "+ title);
        year = (year != null) ? year : "";
        director = (director != null) ? director : "";
        star_name = (star_name != null) ? star_name : "";

        System.out.println("going to movieServlet");

        // Output stream to STDOUT
        PrintWriter out = response.getWriter();

        try {
            Context initCtx = new InitialContext();
            Context envCtx = (Context) initCtx.lookup("java:comp/env");
            // Look up our data source
            if (envCtx == null)
                throw new Exception("envCtx is NULL");
            DataSource ds = (DataSource) envCtx.lookup("jdbc/TestDB");
            // Get a connection from dataSource
            Connection dbcon = ds.getConnection();
            String query = "";
            title = title + "%";
            director = "%" + director +"%";
            year = "%" + year + "%";
            star_name = "%" + star_name + "%";
            query = ("SELECT m.id, m.title, m.year, m.director, GROUP_CONCAT(DISTINCT g.name separator ',') AS genres, GROUP_CONCAT(DISTINCT s.name, ',', s.id separator ',') AS starNameID, r.rating
                    "FROM movies m, stars in movies sim, stars s, genres g, genres in movies gim, ratings r\n" +
                    "WHERE m.id = sim.movieid AND s.id = sim.starId AND g.id = gim.genreId AND m.id = gim.movieId AND m.id = r.movieId \n" +
                    "AND (match (m.title) against ( '"+ terms +"' in boolean mode) OR ( '"+ title +"' LIKE m.title) OR ed(m.title, '"+ title_cpy +"' ) <= 3) AND m.director LIKE '"+ director +"'
                    "AND s.name LIKE '"+ star_name +"' \n" +
                    "GROUP BY m.id, m.title, m.year, m.director, r.rating\n" +
                    "order by (ed( '"+title +"' ,m.title)) asc\n" +
                    "LIMIT 1000");
            // Declare our statement
            Statement statement = dbcon.createStatement();

                    // Set the parameter represented by "?" in the query to the id we get from url,
                    // num 1 indicates the first "?" in the query
//              statement.setString(1, terms);
//              statement.setString(2, title);
//              statement.setString(3, title);
//              statement.setString(4, director);
//              statement.setString(5, year);
//              statement.setString(6, star_name);
```

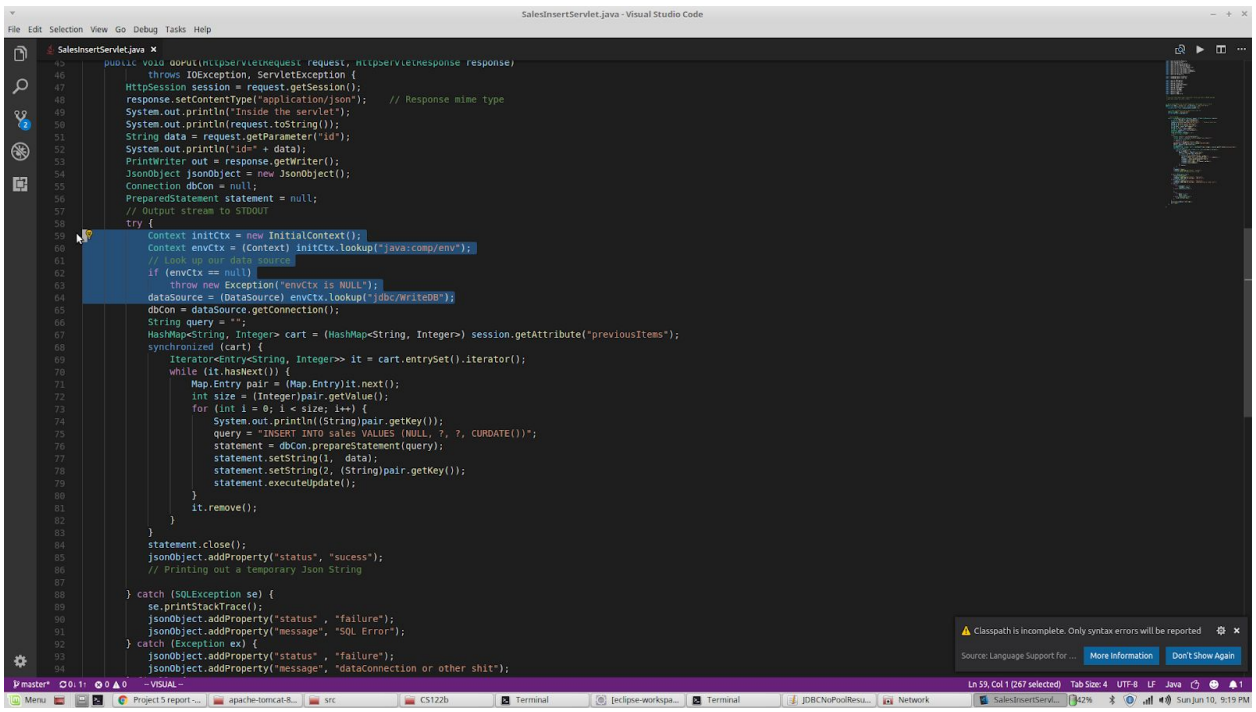
Classpath is incomplete. Only syntax errors will be reported

Source: Language Support for ... More Information Don't Show Again

master* 0↓ 1↑ 0 0 – VISUAL – Ln 87, Col 71 (271 selected) Tab Size: 4 UTF-8 LF Java 1

Menu Project 5 report -... apache-tomcat-8... src CS122b Terminal [eclipse-workspa... Terminal JDBCNoPoolResu... Network MovieListServlet... 44% Sun Jun 10, 9:13 PM





- How did you use Prepared Statements?

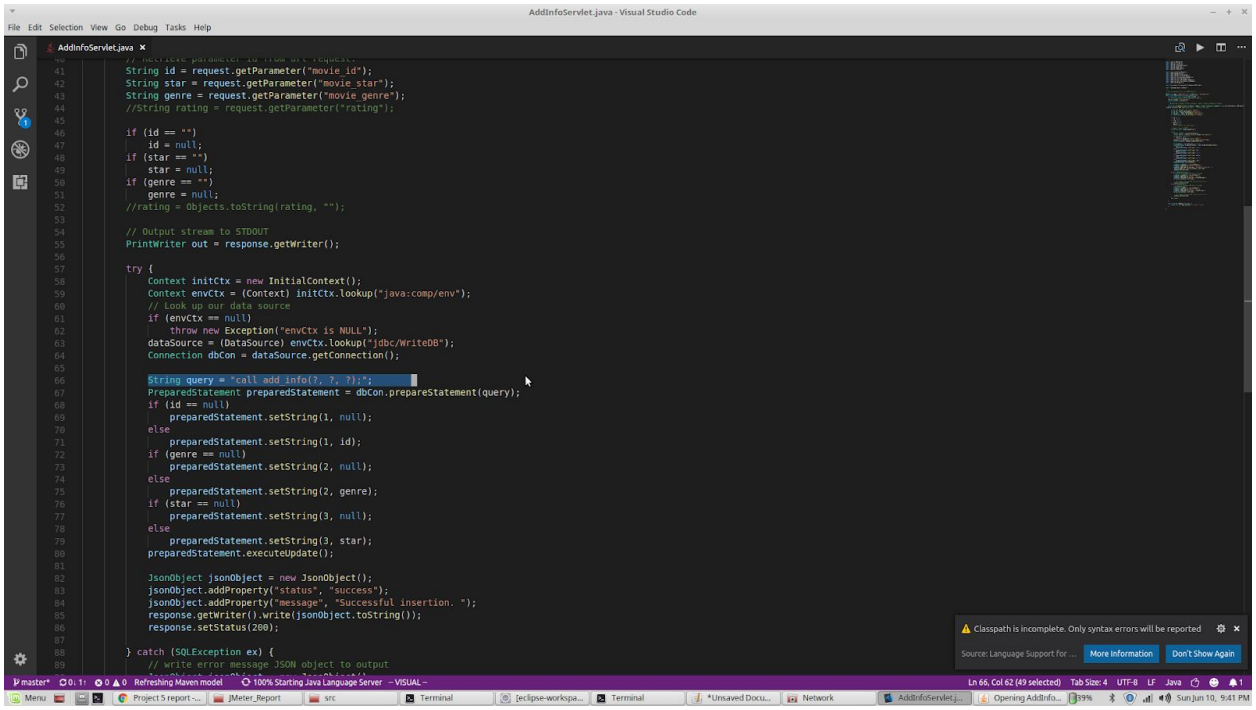
Prepared Statements are used by putting ? in the MYSQL statement. Depending on how many ? there are in the mySQL statement, you have to fill in the ? by putting in putString in it or the associated correct value.

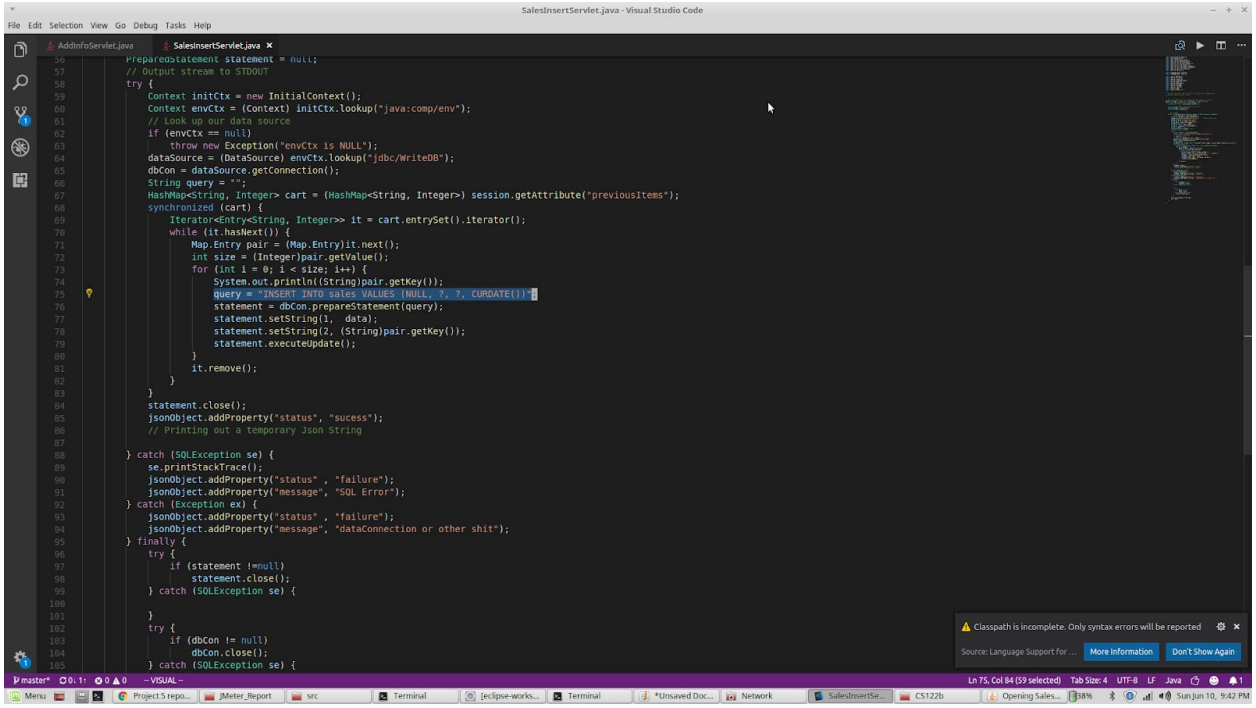
- File name, line numbers as in Github

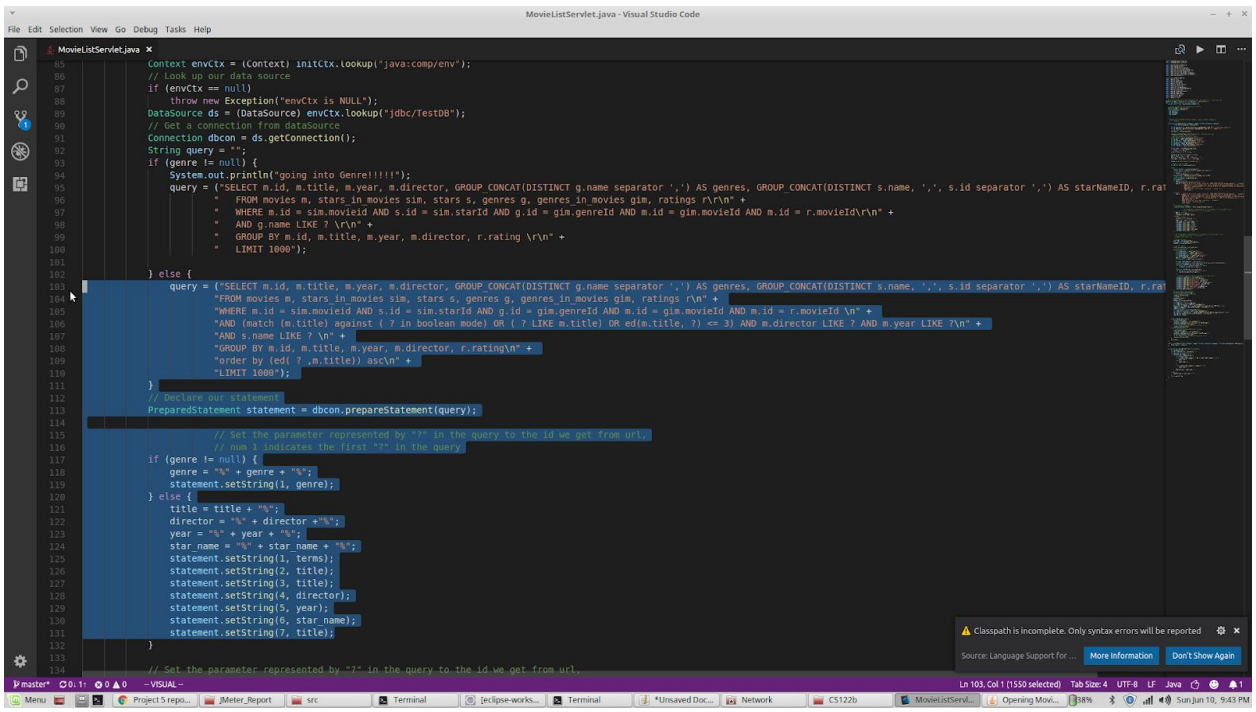
[cs122b-spring18-team-63](/)/[project1](/project1)/[tomcatServlet](/project1/tomcatServlet)/src/

AddInfo - 66
AddMovie - 76
AddStar - 58
Credit Card - 71
Login - 93
MovieAutoComplete - 114
MovieListServlet - 103
MovieListNoPS - 95
MovieListNoPool - 101
SalesInsert - 75
Stars - 58

- Snapshots showing use in your code







Task 2

- Address of AWS and Google instances

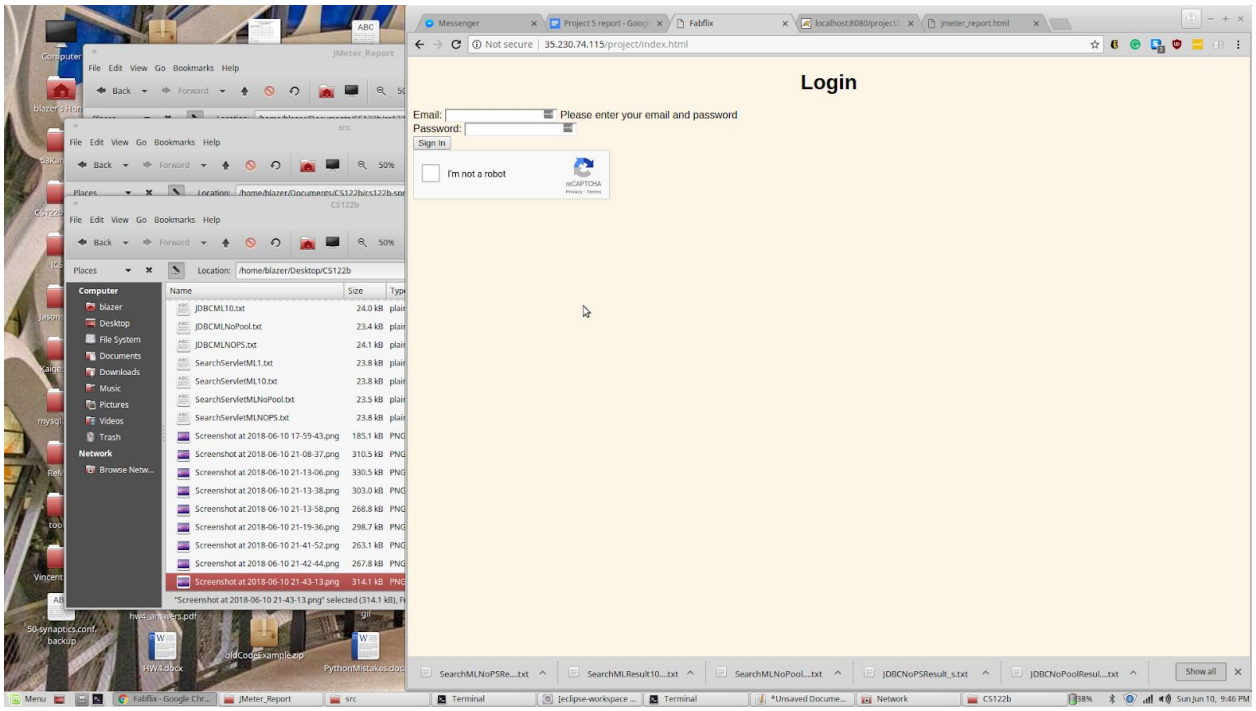
Google	Original(Load)	Master	Slave

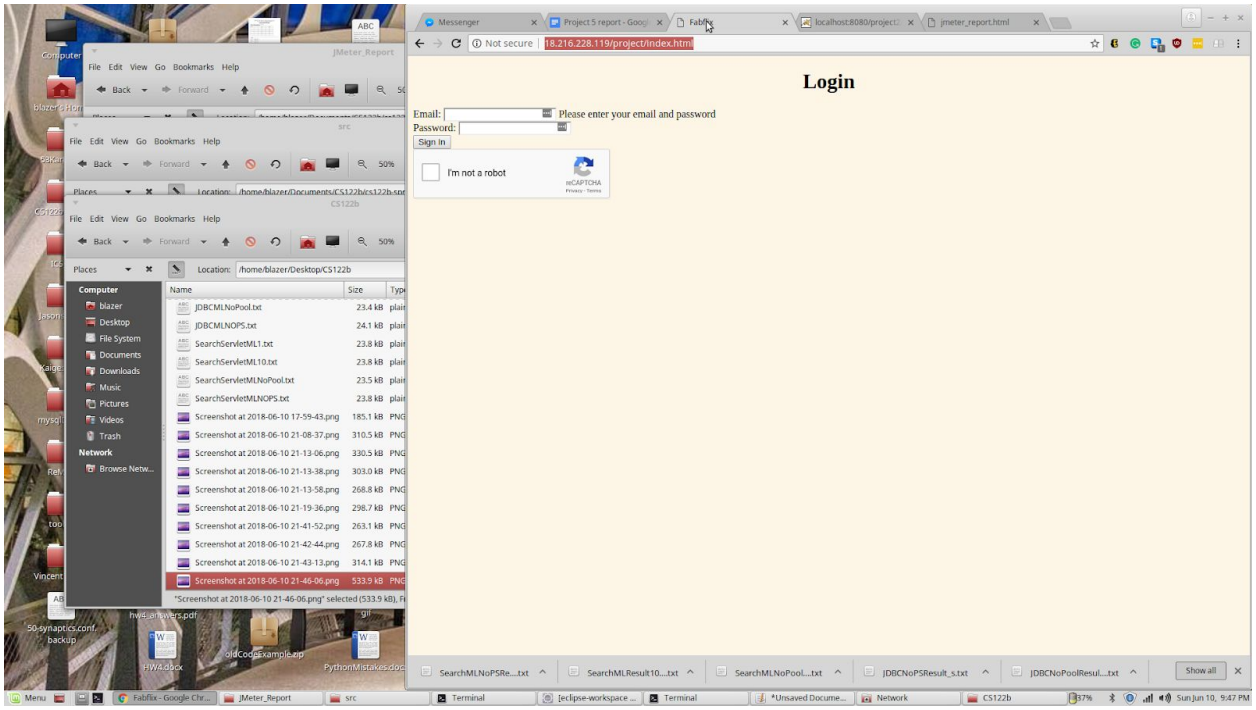
35.230.74.115	18.216.228.119	52.14.183.147	18.188.5.190

- Have you verified that they are accessible? Does Fablix site get opened both on Google's 80 port and AWS' 8080 port?

The Fabflix instance is open on both Google 80, and AWS is working on 8080 for the slave and master.

Google instance:





AWS Load Balancer

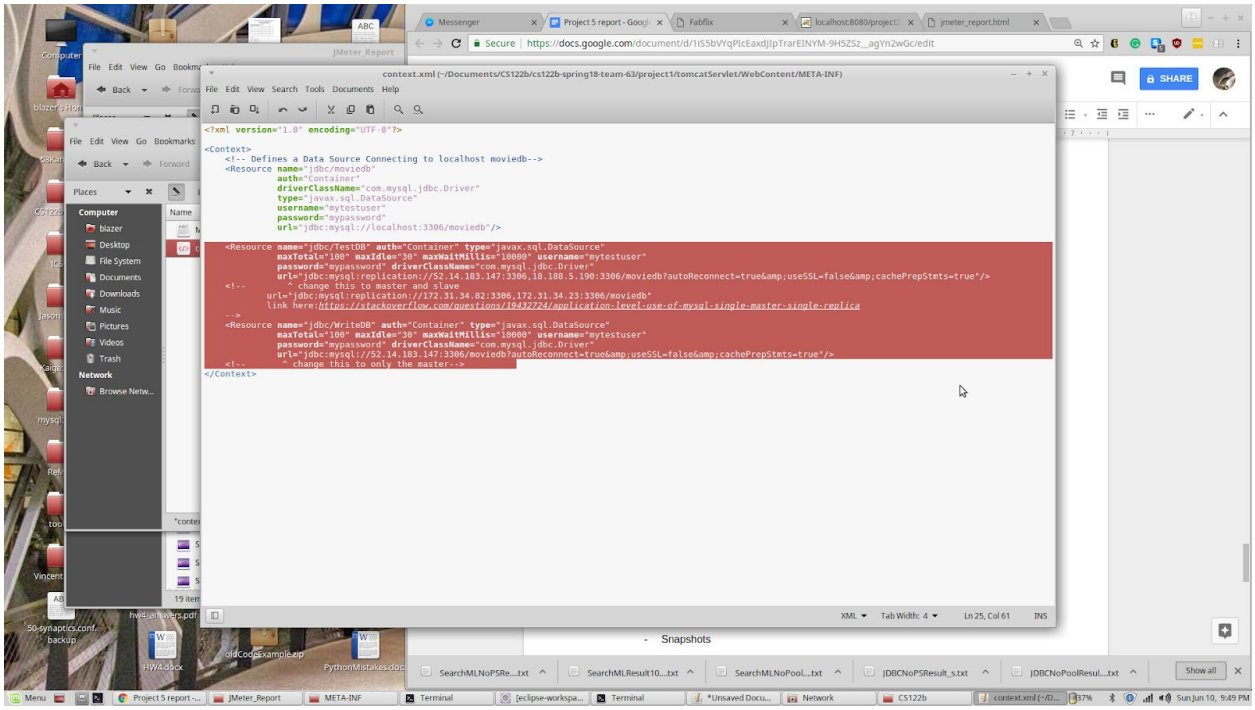
- Explain how connection pooling works with two backend SQL (in your code)?

Each tomcat instance can talk to the master mysql instance and also the slave mysql instance. In your context.xml, you have to make sure the read settings are replicated for the read.

- File name, line numbers as in Github

[project1](/)/[tomcatServlet](/)/[WebContent](/)/[META-INF](/)/context.xml - 13 -24

- Snapshots



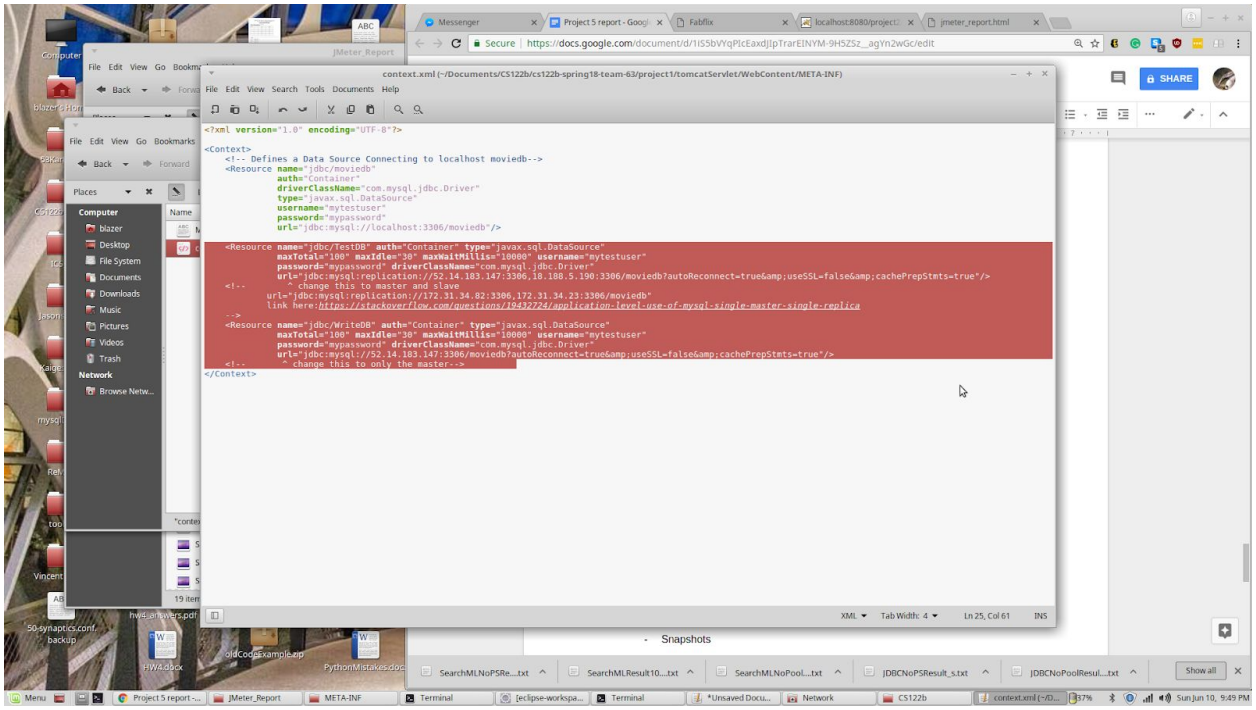
- How read/write requests were routed?

Read uses mysql replication while the write is only routed to the master.

- File name, line numbers as in Github

[project1](/)[tomcatServlet](/)[WebContent](/)[META-INF](/)context.xml - 13 -24

- Snapshots



Task 3

- Have you uploaded the log files to Github? Where is it located?
  The logfile are in the root directory of the Github file. It is called 80 Logs and 8080 Logs

- Have you uploaded the HTML file (with all sections including analysis, written up) to Github? Where is it located?
  The Jmeter Report is in the folder JMeter_report.

- Have you uploaded the script to Github? Where is it located?
  The Jmeter Scripts are on the folder Jmeter Scripts

- Have you uploaded the WAR file and README to Github? Where is it located?
  The Readme are in the in root folder. The war file is in /home/blazer/Documents/CS122b/cs122b-spring18-team-63/project1/tomcatServlet/target