
(2001 3)

from Yongwoo' s Park

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1. (Exception Handling)

1.1 (Exception)

가 .
 , A A
 , 0 'Divide by 0 가
 .
 가 ,
 , 가
 가 .
 가 ,
 .

1.1.1

- 가 , 가
 , 가
 ,
 가
 ,
 가 .
- try/catch/finally 가 .
 - throw .
- , , main 가 가
 main , main
 가 가 , main

가 . ,
가 .

1.1.2 try/catch

, 가 try/catch .

```
try {  
    // 가  
} catch(ExceptionType-1 exceptionName-n) {  
    // 가 ,  
} catch(ExceptionType-2 exceptionName-2) {  
    // 가 ,  
    // 가 ,  
    ...  
} catch(ExceptionType-n exceptionName-n) {  
    //  
}
```

try/catch . , 가 가 try
 . , 가 catch
 . try catch .

- try : try 가 .
가 try 가 가 , .
catch .
가 catch . , try
 , try catch
가 , catch 가
 , try
 ,
 , catch .

- catch : try catch finally . catch
try 가 , . catch
try , .
try catch , try
catch , catch
catch

1 try/catch .
1 Class.forName(..) ,
ClassNotFoundException 가 가 , DriverManager.getConnection(..)
SQLException 가 , 가 가
try , 가
catch .

```

Connection conn = null;
try {
    Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
    conn = DriverManager.getConnection("jdbc:odbc:Guestbook", "sa", "");
} catch(SQLException e) {
    e.printStackTrace();
} catch(ClassNotFoundException e) {
    e.printStackTrace();
}

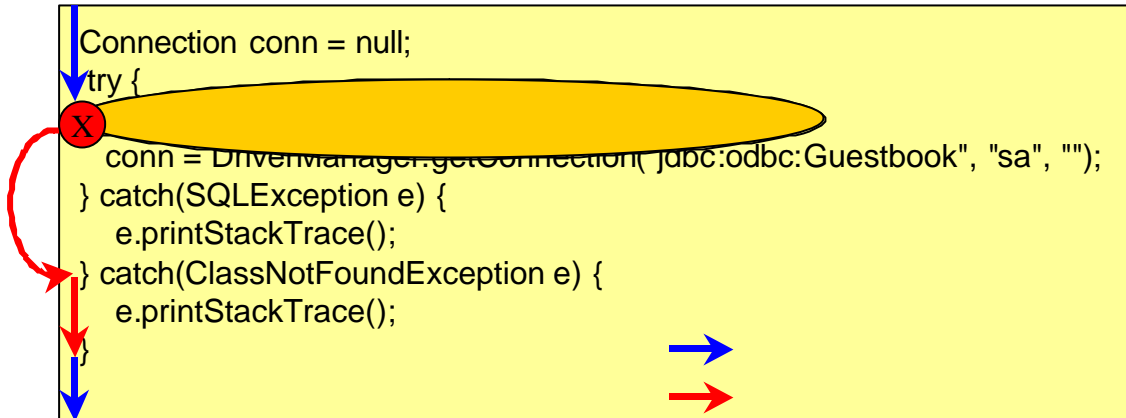
```

1.

가 1 try ,
catch
가 1 , JDBC
sun.jdbc.odbc.JdbcOdbcDriver 2
ClassNotFoundException 가 ,
catch 2 , ClassNotFoundException
catch try/catch
가 ,

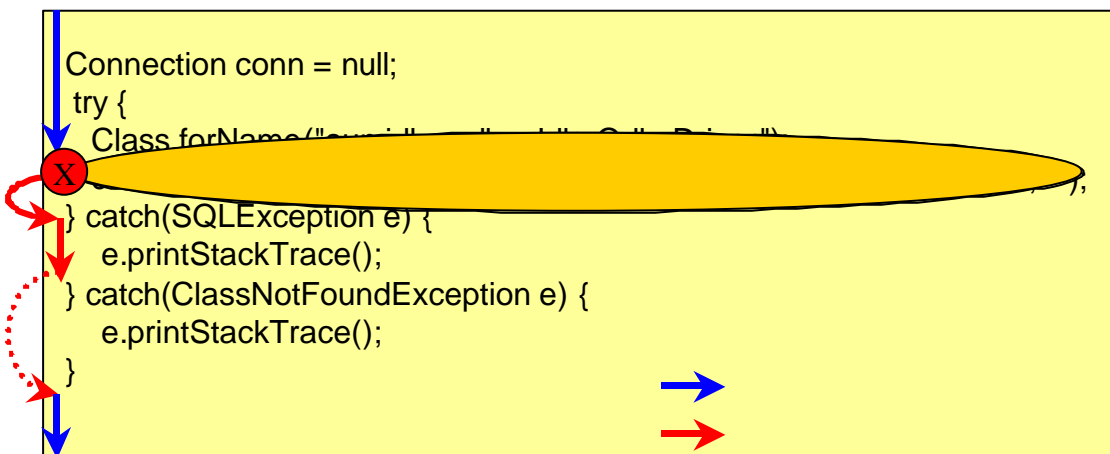
```
System.out.println("Exception: " + e)
```

```
2 e.printStackTrace()
```



2. ClassNotFoundException 가

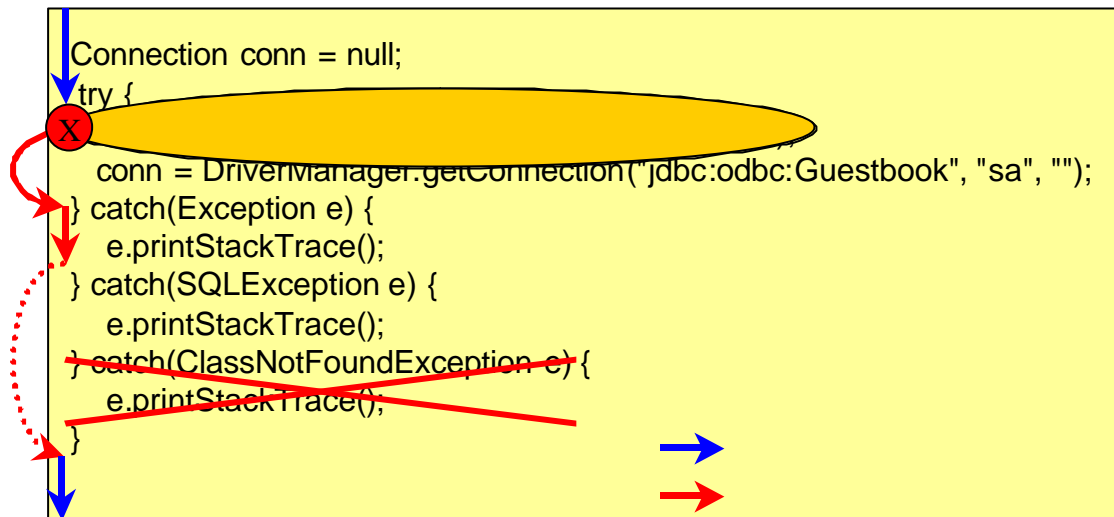
가 1, JDBC
가
3 SQLException 가
catch
catch try/catch



3. SQLException 가

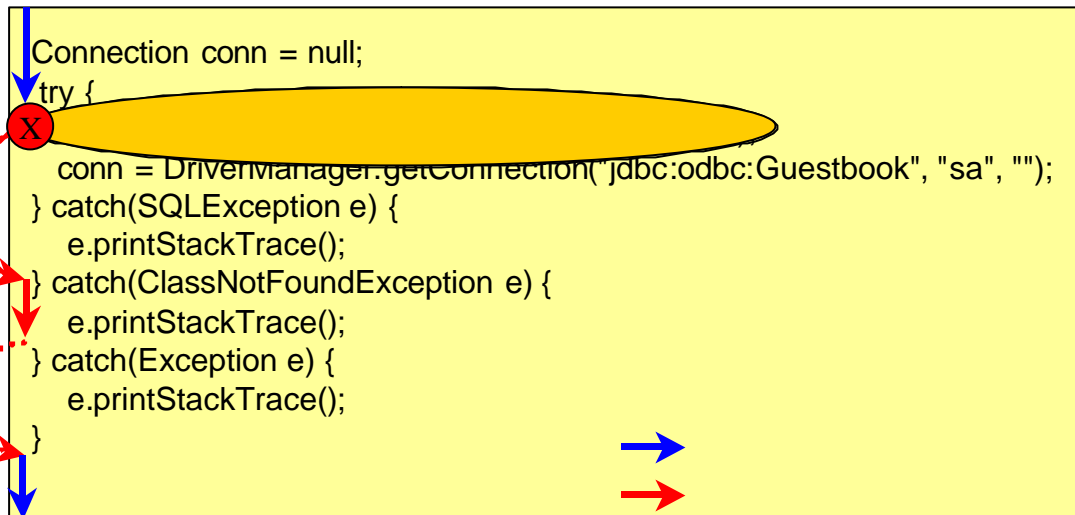
, catch
catch

, 4 catch , try 가
, try JDBC sun.jdbc.odbc.JdbcOdbcDriver
ClassNotFoundException 가
ClassNotFoundException 가 catch
ClassNotFoundException catch 가
Exception catch .



4. catch

, try ClassNotFoundException 가 , 4
가 . ,
catch , catch 가
, try catch
5
catch catch .



5. catch

1.1.3 try/catch/finally

try/catch
가

finally
가

try/catch
catch

finally
(resources)

가

catch , finally

```

try {
    // 가
} catch(ExceptionType-1 exceptionName-1) {
    // 가 ,
} catch(ExceptionType-2 exceptionName-2) {
    // 가 ,
    // 가 ,
    ...
} catch(ExceptionType-n exceptionName-n) {
    //

```

```

    } finally {
        // try 가
        //
    }

, JDBC
    Connection
        Connection close()
        .
        ,
        가
가? ,
    Connection close()
, 가
        try 가
        , finally
        가 6 try , try
        , try finally
        , finally conn.close()
        ,
        .

```

```

Connection conn = ConnectionPool.createConnection();
PreparedStatement pstmt = null;
try {
    String query = "INSERT INTO x (a, b, c) VALUES (?, ?, ?)";
    pstmt = conn.prepareStatement(query);
    ...
    pstmt.executeUpdate();
} catch (SQLException e) {
    e.printStackTrace();
} finally {
    conn.close();
}

```

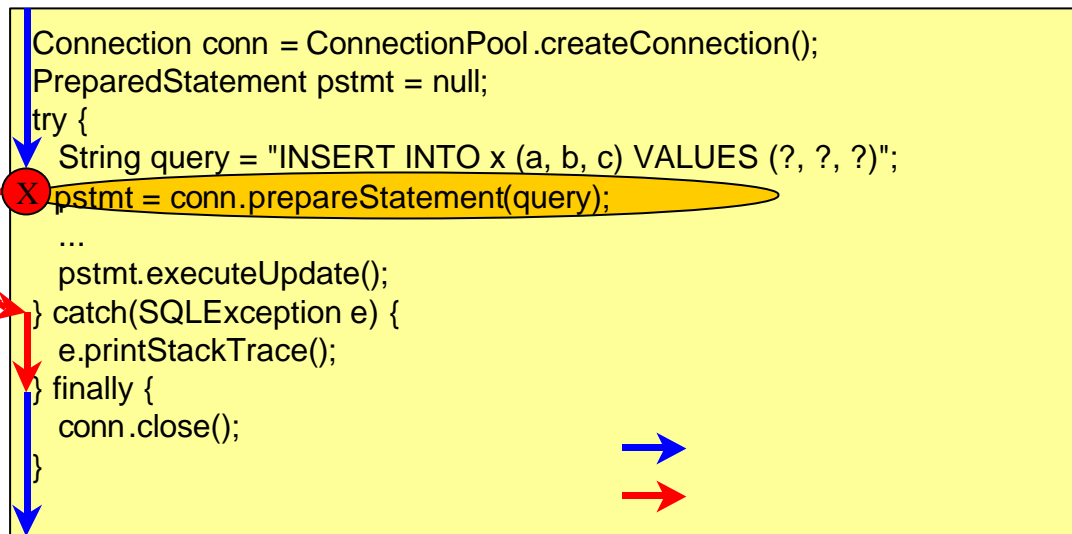
The diagram illustrates the execution flow of the provided Java code. Blue arrows indicate the normal flow: from the start of the try block, through the try block's body, to the finally block, and then to the end of the try-catch-finally construct. Red arrows indicate the exception flow: from the point where an exception is thrown (within the try block), through the catch block, and then to the finally block, before reaching the end of the construct. The code itself is highlighted in a yellow box.

6. 가

```

, 가 6 try
7 conn.prepareStatement(...) 가
, SQLException 가 , SQLException catch
. catch , catch
finally finally

```



7. 가

1.1.4

try/catch , try try/catch
 , catch try/catch ,
 try try/catch/finally , 가 finally
 try/catch/finally .

```

Connection conn = ConnectionPool.createConnection();
PreparedStatement pstmt = null;
try {
    conn.setAutoCommit(false);

    String query = "INSERT INTO x (a, b, c) VALUES (?, ?, ?)";
    pstmt = conn.prepareStatement(query);

    while(...) {
        ...
        if(pstmt.executeUpdate() < 1) {
            throw new SQLException("Insert failed");
        }
    }
    conn.commit();
} catch(SQLException e) {
    e.printStackTrace();
    try {
        conn.rollback();
    } catch(SQLException e1) {
        e1.printStackTrace();
    }
} finally {

```

```

try {
    conn.setAutoCommit(true);
    pstmt.close();
    conn.close();
} catch(SQLException e1) {
    e1.printStackTrace();
}
}

```

8.

JDBC

8

JDBC

,

try/catch/finally

, 가

catch

catch

try/catch

try/catch/finally

catch

e

, catch

try/catch

catch

e

e1

try {

...

} catch(SQLException e) {

try {

...

} catch(SQLException e1) {

...

}

} finally {

try {

...

} catch(SQLException e) {

...

}

}

8

,

try/catch/finally

try

conn.setAutoCommit(false)

, INSERT

,

INSERT

가

```

, INSERT                                while                                가
. , while                                ,
INSERT                                conn.commit()                                .
, finally                                , conn.setAutoCommit(true)
, INSERT                                pstmt                                close()                                ,
                                conn                                close()                                .
, conn.setAutoCommit(true), pstmt.close(), conn.close()                                , SQLException
가 가 try/catch .
, try/catch/finally try INSERT
가 , INSERT
. , try                                SQLException 가
catch                                conn.rollback()                                ,
conn.rollback() , SQLException 가 가 try/catch
. , finally                                finally .
,
. , try , catch , finally 가 가
,

```

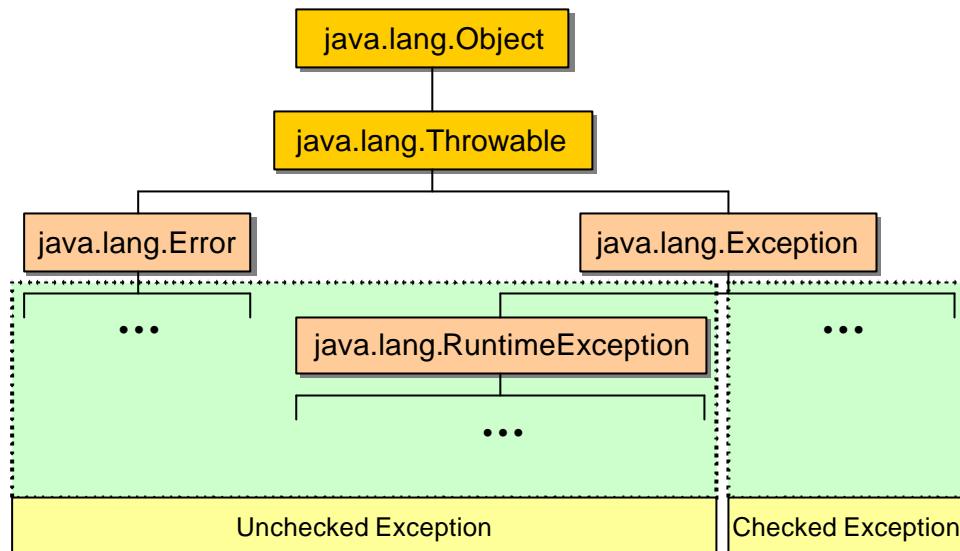
1.2

1.2.1

```

try/catch/finally                                ,
. ,
, 가 . 9
.

```



9.

try/catch try/catch Error
 가 Exception 가
 , Exception RuntimeException Exception
 가

- Error:
- RuntimeException : RuntimeException
 , 가
- Exception RuntimeException : Exception
 RuntimeException
 try/catch

, Error AWTError, LinkageError, ThreadDeath, VirtualMachineError
 , try/catch
 , ThreadDeath 가
 , RuntimeException
 가
 가

, RuntimeException
 ,
 , NullPointerException 가 new
 .

```

int a[]=null;
...
i = a[0];
System.out.println("a[0]="+ a[0]); // 6
    
```

10. NullPointerException 가

가 ,
 가 . ,
 , 가 . ,
 , 가 ,
 가 .
 ExceptionTest2.java main() 6 가

```

Exception in thread "main" java.lang.NullPointerException:
at ExceptionTest2.main(ExceptionTest2.java:6)
    
```

11. NullPointerException

, ,
 . ,
 .
 , Exception RuntimeException
 try/catch ,
 가 .
 , 가
 ,
 가 ,
 ,
 , try/catch
 , ClassNotFoundException

Class.forName(...) , SQLException
 DriverManager.getConnection(...) conn.close() , try/catch
 가 .

```

Class.forName(jdbcDriver);
Connection conn = DriverManager.getConnection(jdbcUrl, "sa", "");
...
conn.close();
  
```

12. try/catch

, 가
 . ,
 , try/catch
 ,
 ClassNotFoundException SQLException try/catch
 ,

```

X.java:9: unreported exception java.lang.ClassNotFoundException; must be caught or declared to be
thrown
    Class.forName(jdbcDriver);
      ^
X.java:10: unreported exception java.sql.SQLException; must be caught or declared to be thrown
    Connection conn = DriverManager.getConnection(jdbcUrl, "sa", "");
                        ^
X.java:13: unreported exception java.sql.SQLException; must be caught or declared to be thrown
    conn.close();
      ^
  
```

13. try/catch

ClassNotFoundException SQLException ,
 (CLASSPATH)
 가 가
 가 . ,
 try/catch
 .

```
try {
```



```

    Class.forName(jdbcDriver);
    Connection conn = DriverManager.getConnection(jdbcUrl, "sa", "");
    /* ... */
} catch(Exception e) {
    e.printStackTrace();
} finally {
    conn.close();
}

```

14. try/catch

, 12 , try/catch 14
 . , 14 try/catch
 , 15 가 , 14 try/catch
 , conn try 가 , finally
 conn . ,

```

X.java:16: cannot resolve symbol
symbol  : variable conn
location: class X
    conn.close();
    ^

```

15. “cannot resolve symbol”

, 14 conn try
 . , ,
 .

```

Connection conn;
try {
    Class.forName(jdbcDriver);
    conn = DriverManager.getConnection(jdbcUrl, "sa", "");
    /* ... */
} catch(Exception e) {
    e.printStackTrace();
} finally {
    conn.close();
}

```

16. try conn

```

, 16 conn try
, 17 가 . , conn try
, conn try
. , finally conn.close()
conn . , conn
null .

```

X.java:17: variable conn might not have been initialized

```
conn.close();
```

^

X.java:17: unreported exception java.sql.SQLException; must be caught or declared to be thrown

```
conn.close();
```

^

17.

```

, finally conn.close() , Connection close()
SQLException . , conn.close() finally
, conn.close() try/catch
. 12
, .

```

```

Connection conn=null;
try {
    Class.forName(jdbcDriver);
    conn = DriverManager.getConnection(jdbcUrl, "sa", "");
} catch(Exception e) {
    e.printStackTrace();
} finally {
    try {
        conn.close();
    } catch(SQLException e) {
        e.printStackTrace();
    }
}

```

18. try/catch

1.3

1.3.1

Throwable 가 .
Throwable 가 ,
(Checked Exception) ,
가 가 “ ” .
, 가 가 ,
throws
“ ” ,

```
protected void service(HttpServletRequest req, HttpServletResponse res)
    throws ServletException, java.io.IOException {
    ...
}
```

19.

19 service() ServletException java.io.IOException ()
 , service()
 ,
 throws
 throw
 가
 가 가 ,

- , throw java.lang.Throwable 가
- , throw try/catch .

- throws

,

```
public void delete(long seqNum) throws SQLException {
    deletePstmt.setInt(1, (int)seqNum);
    if(deletePstmt.executeUpdate() < 1) {
        throw new SQLException("Delete failed");
    }
}
```

20.

20
SQLException
throws
delete()
throw
throws

throw new SQLException("Delete failed");

가 throws 가
가

- try/catch
- throws
- catch throw

throws , throws

- throws

- 가 throws , throws

-
- 가 throws , .