

Logging

Logging

1. What are logs?
2. Why are they important?
3. What to log?
4. how to log?
5. Where to log?

Record of processes

- User interaction
- Errors
- Events

Reasons

- Troubleshooting
- Data/Statistics
- Security

When? Where? What? How?

- Data and Time
- Identifiers
- Context
- Cause

- Provide date and time

YYYY-MM-DD HH:mm:ss.sss ZZ

2022-11-07 06:12:42.067 +0500

- Provide identifiers

```
... [zktsync.us-east-1] ...
```

```
... [zktsync.rpc.ru-west-1] ...
```

```
... [zktsync.http.eu-south-42] ...
```

Logging

4. how to log?

- Provide meaningful message

... Operation failed ...

... Connection failed ...

... Not Found ...

... Attendance synchronization of users failed ...

... Failed to connect to ZKT API ...

... Requested book with id of "42" was not found ...

```
avax.servlet.ServletException: Something bad happened
    at com.example.myproject.OpenSessionInViewFilter.doFilter(OpenSessionInViewFilter.java:60)
    at org.mortbay.jetty.servlet.ServletHandler$CachedChain.doFilter(ServletHandler.java:1157)
    at com.example.myproject.ExceptionHandlerFilter.doFilter(ExceptionHandlerFilter.java:28)
    at org.mortbay.jetty.servlet.ServletHandler$CachedChain.doFilter(ServletHandler.java:1157)
    at com.example.myproject.OutputBufferFilter.doFilter(OutputBufferFilter.java:33)
    at org.mortbay.jetty.servlet.ServletHandler$CachedChain.doFilter(ServletHandler.java:1157)
    at org.mortbay.jetty.servlet.ServletHandler.handle(ServletHandler.java:388)
    at org.mortbay.jetty.security.SecurityHandler.handle(SecurityHandler.java:216)
    at org.mortbay.jetty.servlet.SessionHandler.handle(SessionHandler.java:182)
    at org.mortbay.jetty.handler.ContextHandler.handle(ContextHandler.java:765)
    at org.mortbay.jetty.webapp.WebAppContext.handle(WebAppContext.java:418)
    at org.mortbay.jetty.handler.HandlerWrapper.handle(HandlerWrapper.java:152)
    at org.mortbay.jetty.Server.handle(Server.java:326)
    at org.mortbay.jetty.HttpConnection.handleRequest(HttpConnection.java:542)
    at org.mortbay.jetty.HttpConnection$RequestHandler.content(HttpConnection.java:943)
    at org.mortbay.jetty.HttpParser.parseNext(HttpParser.java:756)
    at org.mortbay.jetty.HttpParser.parseAvailable(HttpParser.java:218)
    at org.mortbay.jetty.HttpConnection.handle(HttpConnection.java:404)
    at org.mortbay.jetty.bio.SocketConnector$Connection.run(SocketConnector.java:228)
    at org.mortbay.thread.QueuedThreadPool$PoolThread.run(QueuedThreadPool.java:582)
Caused by: com.example.myproject.MyProjectServletException
    at com.example.myproject.MyServlet.doPost(MyServlet.java:169)
    at javax.servlet.http.HttpServlet.service(HttpServlet.java:727)
    at javax.servlet.http.HttpServlet.service(HttpServlet.java:820)
    at org.mortbay.jetty.servlet.ServletHolder.handle(ServletHolder.java:511)
    at org.mortbay.jetty.servlet.ServletHandler$CachedChain.doFilter(ServletHandler.java:1166)
    at com.example.myproject.OpenSessionInViewFilter.doFilter(OpenSessionInViewFilter.java:30)
    ... 27 more
Caused by: org.hibernate.exception.ConstraintViolationException: could not insert: [com.example.myproject.Book]
    at org.hibernate.exception.SQLStateConverter.convert(SQLStateConverter.java:96)
    at org.hibernate.exception.JDBCExceptionHelper.convert(JDBCExceptionHelper.java:66)
    at org.hibernate.id.insert.AbstractSelectingDelegate.performInsert(AbstractSelectingDelegate.java:62)
    at org.hibernate.persister.entity.AbstractEntityPersister.insert(AbstractEntityPersister.java:347)
    at org.hibernate.persister.entity.AbstractEntityPersister.insert(AbstractEntityPersister.java:322)
    at org.hibernate.action.EntityIdentityInsertAction.execute(EntityIdentityInsertAction.java:107)
    at org.hibernate.engine.ActionQueue.execute(ActionQueue.java:268)
    at org.hibernate.event.def.AbstractSaveEventListener.performSaveOrReplicate(AbstractSaveEventListene
    at org.hibernate.event.def.AbstractSaveEventListener.performSave(AbstractSaveEventListene
```

- Provide context

```
... Attendance synchronization of users failed school_id="42" month=11 ...
```

```
... Failed to connect to ZKT API address="127.0.0.1:8081" ...
```

```
... Requested book with id of "42" was not found user_id="56" ...
```

Destination

- STDOUT, STDERR
- File
- Logging server (through HTTP)