Part 1

1. Application Skeleton

1.1. Create Git Repository

1.2. Create Project

1.3. Spring Dependencies

pom.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
    https://maven.apache.org/xsd/maven-4.0.0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <packaging>jar</packaging>

    <parent>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-parent</artifactId>
        <version>2.7.4</version>
        <relativePath/> <!-- lookup parent from repository -->
    </parent>

    <groupId>de.kessel</groupId>
    <artifactId>simple-asciidoc-blog-application</artifactId>
    <version>0.0.1-SNAPSHOT</version>
    <name>ELENA - the simple asciidoc blog.</name>
    <description>A simple asciidoc blog application in spring boot.</description>

    <properties>
        <java.version>17</java.version>
        <jackson.databind.version>2.14.0-rc1</jackson.databind.version>
        <snakeyaml.version>1.33</snakeyaml.version>
    </properties>

    <dependencies>
        <dependency>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-starter-web</artifactId>
            <exclusions>
                <exclusion>
                    <groupId>com.fasterxml.jackson.core</groupId>
```

```xml
                <artifactId>jackson-databind</artifactId>
            </exclusion>
            <exclusion>
                <groupId>org.yaml</groupId>
                <artifactId>snakeyaml</artifactId>
            </exclusion>
        </exclusions>
    </dependency>
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-data-jpa</artifactId>
    </dependency>
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-test</artifactId>
        <scope>test</scope>
    </dependency>
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-devtools</artifactId>
        <optional>true</optional>
    </dependency>
    <dependency>
        <groupId>com.fasterxml.jackson.core</groupId>
        <artifactId>jackson-databind</artifactId>
        <version>${jackson.databind.version}</version>
    </dependency>
    <dependency>
        <groupId>org.yaml</groupId>
        <artifactId>snakeyaml</artifactId>
        <version>${snakeyaml.version}</version>
    </dependency>
    <dependency>
        <groupId>com.h2database</groupId>
        <artifactId>h2</artifactId>
        <scope>runtime</scope>
    </dependency>
    <dependency>
        <groupId>org.projectlombok</groupId>
        <artifactId>lombok</artifactId>
        <optional>true</optional>
    </dependency>
</dependencies>

<build>
    <plugins>
        <plugin>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-maven-plugin</artifactId>
        </plugin>
    </plugins>
```

```
        </build>
</project>
```

1.4. Source Code:

1.4.1. Create PostBlog Entity

PostBlog.java

```java
package de.kessel.elena.entity;


import lombok.Getter;
import lombok.Setter;

import javax.persistence.*;
import java.time.LocalDate;

@Getter
@Setter
@Entity
public class PostBlog {

    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    @Column
    protected Integer id;

    @Lob
    protected String text;

    protected LocalDate createdAt;

    protected LocalDate updatedAt;

}
```

1.4.2. Create PostBlog Repository

PostBlogRepository.java

```java
package de.kessel.elena.repository;

import de.kessel.elena.entity.PostBlog;
import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.stereotype.Repository;

@Repository
public interface PostBlogRepository extends JpaRepository<PostBlog, Integer> {
```

```
}
```

1.4.3. Create PostBlog Service

PostBlogService.java

```java
package de.kessel.elena.service;

import de.kessel.elena.entity.PostBlog;
import de.kessel.elena.repository.PostBlogRepository;
import org.springframework.stereotype.Service;

import java.util.List;

@Service
public class PostBlogService {
    private final PostBlogRepository repository;

    public PostBlogService(final PostBlogRepository repository){
        this.repository = repository;
    }

    public PostBlog savePostBlog(final PostBlog postBlog){
        return repository.save(postBlog);
    }

    public List<PostBlog> savePostBlogs(final List<PostBlog> postBlogs){
        return repository.saveAll(postBlogs);
    }

    public List<PostBlog> findPostBlogs(){
        return repository.findAll();
    }
}
```

1.4.4. Create Example Data

DataInstaller.java

```java
package de.kessel.elena.config;

import de.kessel.elena.entity.PostBlog;
import de.kessel.elena.service.PostBlogService;
import org.springframework.boot.CommandLineRunner;
import org.springframework.stereotype.Component;

import java.time.LocalDate;
import java.util.List;
```

```java
@Component
public class DataInstaller implements CommandLineRunner {

    private final PostBlogService postBlogService;

    public DataInstaller(final PostBlogService postBlogService) {
        this.postBlogService = postBlogService;
    }

    @Override
    public void run(String... args) throws Exception {
        List<PostBlog> postBlogs = List.of(
                createPostBlog(asciidocListen()),
                createPostBlog(asciidocChecklisten()),
                createPostBlog(asciidocAufzaehlung()),
                createPostBlog(asciidocLabeledLists()),
                createPostBlog(ascdiidocQuotes()),
                createPostBlog(asciidocBlock()),
                createPostBlog(asccidocCodeBlocksWithCallouts()),
                createPostBlog(asciidocTable()),
                createPostBlog(loreIpsum()),
                createPostBlog(asciidocMath()),
                createPostBlog(asciidocSourceCode()),
                createPostBlog(asciidocUnconstrainedText()),
                createPostBlog(asciidocHighlightedText()),
                createPostBlog(asciidocSupscriptedText()),
                createPostBlog(asciidocQuote()),
                createPostBlog(ascdiidocQuotes())
        );

        postBlogService.savePostBlogs(postBlogs);
    }

    private PostBlog createPostBlog(final String text){
        PostBlog postBlog = new PostBlog();
        postBlog.setCreatedAt(LocalDate.now());
        postBlog.setUpdatedAt(LocalDate.now());
        postBlog.setText(text);
        return postBlog;
    }

    private String asciidocListen() {
        return """
                == Listen

                * Element
                ** nächstes Element
                * weiteres Element
                """;
    }
```

```java
private String asciidocChecklisten() {
    return """
            == Checklisten

            - [ ] noch nicht erledigt
            - [*] erledigt
            """;
}

private String asciidocAufzaehlung() {
    return """
            == Aufzählung

            . erstes Element
            . zweites Element
            .. erstes Unterelement
            """;
}

private String asciidocLabeledLists() {
    return """
            == Labeled Lists

            Label:: Beschreibung
            noch ein Label:: eine weitere Beschreibung
            """;
}

private String asciidocQuote() {
    return """
            == Quote

            [quote, Bill Gates, Microsoft]
            ----
            640 KB are enough for everyone.

            ----
            """;
}

private String asciidocBlock() {
    return """
            == Literal Block

            ....
            Jetzt wird alles
                wie angegeben
              - ausgegeben.
            """;
}

private String asccidocCodeBlocksWithCallouts() {
    return """
```

```java
                == Code Block

                [source,java]
                ----
                public class EnterpriseAbstractFactory { ①
                        public doSomething(int howLong) {
                                Thread.sleep(howLong);    ②
                        }
                }
                ----

                <1> to short
                <2> busy waiting pleas
                """;
    }

    private String asciidocTable() {
        return """
                == Table

                [cols="1,1"]
                |===
                |Cell in column 1, header row |Cell in column 2, header row

                |Cell in column 1, row 2
                |Cell in column 2, row 2

                |Cell in column 1, row 3
                |Cell in column 2, row 3

                |Cell in column 1, row 4
                |Cell in column 2, row 4
                |===
                """;
    }

    private String loreIpsum() {
        return """
                == Lore Ipsum

                Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam
nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam
voluptua. At vero eos et accusam et justo duo dolores et ea rebum.
                Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum
dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam
nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam
                erat, sed diam voluptua. At vero eos et accusam et justo duo dolores
et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor
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                elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore
magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et
```

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consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi.
Nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum. Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.
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sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, At accusam aliquyam diam diam dolore dolores duo eirmod eos erat, et nonumy sed tempor et et invidunt
justo labore Stet clita ea et gubergren, kasd magna no rebum. sanctus sea sed takimata ut vero voluptua. est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr,
sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat.
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sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur
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no sea takimata sanctus.
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam

```
       nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam
       voluptua. At vero eos et accusam et justo duo dolores et ea rebum.
                     tet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum
       dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam
       nonumy eirmod tempor invidunt ut labore et dolore magna
                     aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo
       dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem
       ipsum dolor sit amet. Lorem ipsum dolor sit amet,
                     consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut
       labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et
       justo duo dolores et ea rebum. Stet clita kasd
                     gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet.
                     Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse
       molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et
       accumsan et iusto odio dignissim qui blandit praesent
                     luptatum zzril delenit augue duis dolore te feugait nulla facilisi.
       Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh
       euismod tincidunt ut laoreet dolore magna aliquam erat
                     volutpat.
                     """;
    }

    private String asciidocMath() {
        return """
                == Math

                Here is an example, latexmath:[e^{i \\pi} + 1 = 0].

                [latexmath]
                ++++
                \\frac{\\partial V}{\\partial t}
                + \\frac{1}{2} \\sigma^2 S^2 \\frac{\\partial^2 V}{\\partial S^2}
                + r S \\frac{\\partial V}{\\partial S}
                - r V = 0
                ++++

                """;
    }

    private String asciidocSourceCode() {
        return """
                .Optional Title
                [source,java]
                ----
                public void main(String[] args) throws Exception {
                    System.out.println("Hello World!")
                }
                ----
                """;
    }
```

```java
    private String asciidocUnstainedText() {
        return """
                It has *strong* significance to me.

                I _cannot_ stress this enough.

                Type `OK` to accept.

                That *_really_* has to go.

                Can't pick one? Let's use them `*_all_*`.
                """;
    }

    private String asciidocUnconstrainedText() {
        return """
                **C**reate, **R**ead, **U**pdate, and **D**elete (CRUD)

                That's fan__freakin__tastic!

                Don't pass generic ``Object``'s to methods that accept ``String``'s!

                It was Beatle**__mania__**!
                """;
    }

    private String asciidocHighlightedText() {
        return """
                Werewolves are allergic to #cinnamon#.

                ##Mark##up refers to text that contains formatting ##mark##s.

                Where did all the [.underline]#cores# go?

                We need [.line-through]#ten# twenty VMs.

                A [.myrole]#custom role# must be fulfilled by the theme.
                """;
    }

    private String asciidocSupscriptedText() {
        return """
                    ^super^script phrase

                    ~sub~script phrase
                """;
    }

    private String ascdiidocQuotes() {
        return """
                "`double curved quotes`"
```

```
            ``single curved quotes``

            Olaf's desk was a mess.

            A ``std::vector```'s size is the number of items it contains.

            All of the werewolves`' desks were a mess.

            Olaf had been with the company since the `'00s.
            """;
    }
}
```

1.4.5. H2 Profile for H2

application-h2.properties

```
spring.datasource.url=jdbc:h2:mem:testdb;DB_CLOSE_ON_EXIT=FALSE
spring.datasource.driverClassName=org.h2.Driver
spring.datasource.username=sa
spring.datasource.password=
spring.jpa.database-platform=org.hibernate.dialect.H2Dialect
spring.jpa.hibernate.ddl-auto=create
spring.h2.console.enabled=true
spring.jpa.show-sql=true
spring.thymeleaf.encoding=utf-8
spring.mvc.hiddenmethod.filter.enabled=true
```
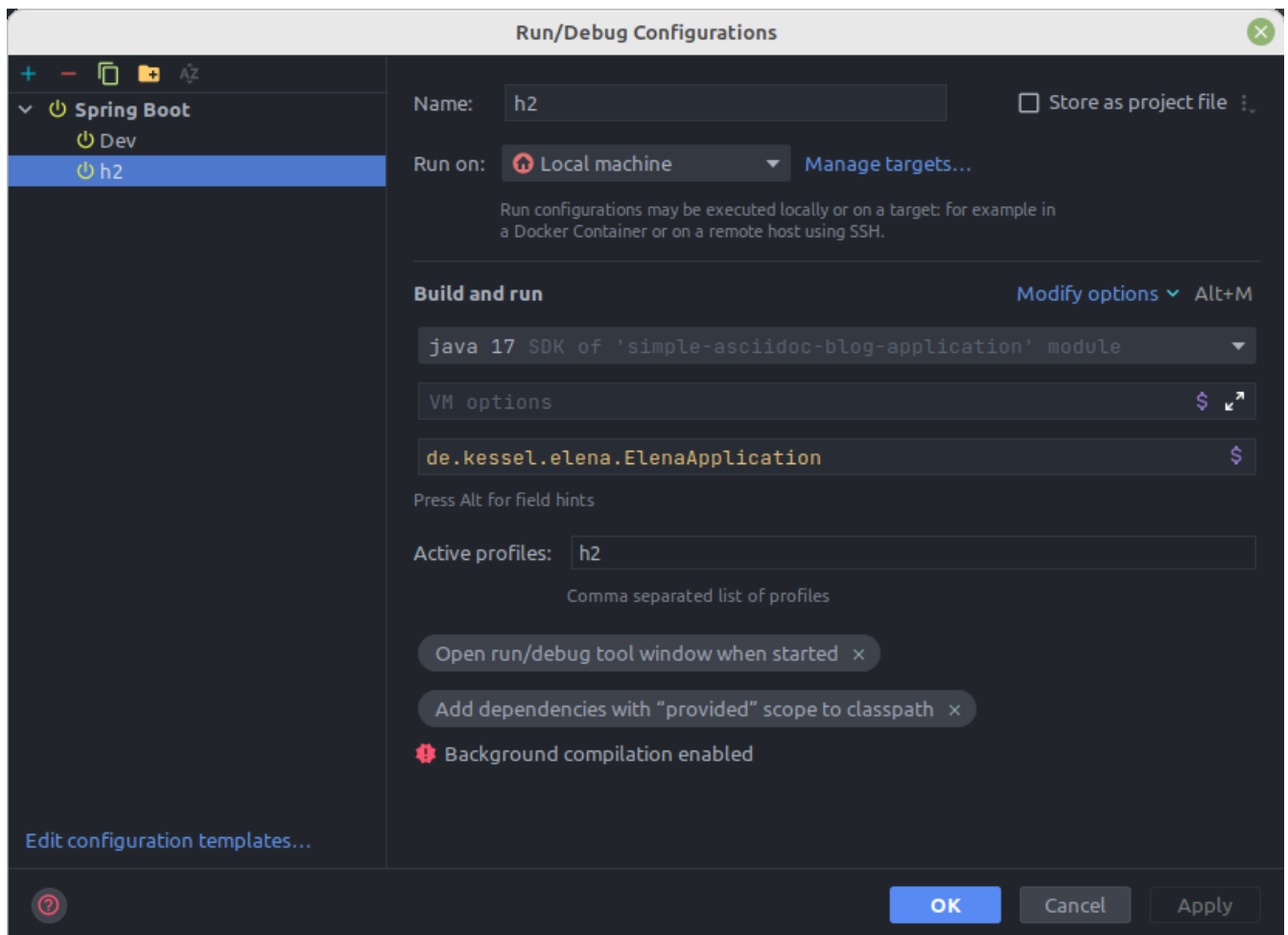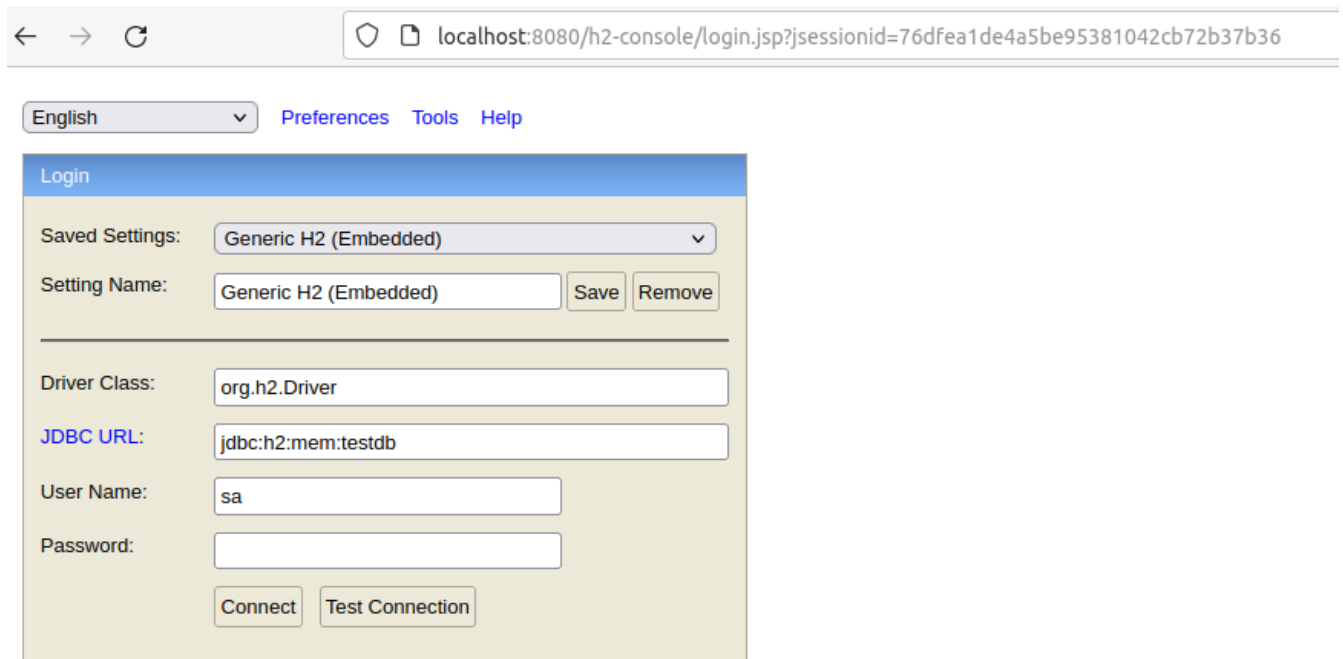
1.4.6. Run Application

Run Application over Maven

```
mvn spring-boot:run
```

Run Application with Profile h2

]

1.4.7. Test on the h2 Database

📄 jdbc:h2:mem:testdb
⊞ 🗇 POST_BLOG
⊞ 📁 INFORMATION_SCHEMA
⊞ 👥 Users
ⓘ H2 2.1.214 (2022-06-13)

| Run | Run Selected | Auto complete | Clear | SQL statement:

SELECT * FROM POST_BLOG |

Important Commands

?		Displays this Help Page
≜		Shows the Command History
⚫	Ctrl+Enter	Executes the current SQL statement
⚫	Shift+Enter	Executes the SQL statement defined by the text selection
	Ctrl+Space	Auto complete
�		Disconnects from the database

Sample SQL Script

Delete the table if it exists	DROP TABLE IF EXISTS TEST;
Create a new table with ID and NAME columns	CREATE TABLE TEST(ID INT PRIMARY KEY, NAME VARCHAR(255));
Add a new row	INSERT INTO TEST VALUES(1, 'Hello');
Add another row	INSERT INTO TEST VALUES(2, 'World');
Query the table	SELECT * FROM TEST ORDER BY ID;
Change data in a row	UPDATE TEST SET NAME='Hi' WHERE ID=1;
Remove a row	DELETE FROM TEST WHERE ID=2;
Help	HELP ...

Adding Database Drivers

Additional database drivers can be registered by adding the Jar file location of the driver to the environment variables H2DRI
C:/Programs/hsqldb/lib/hsqldb.jar.