WEEK 3 ASSIGNMENTS:

MANDTATORY HANDS-ON EXERCISES:

Exercise 1: Configuring a Basic Spring Application

CODE:

Hello.java

```
package com.example.springcore;
public class Hello {
    public void sayHello() {
       System.out.println("Hello from Spring!");
   }
}
```

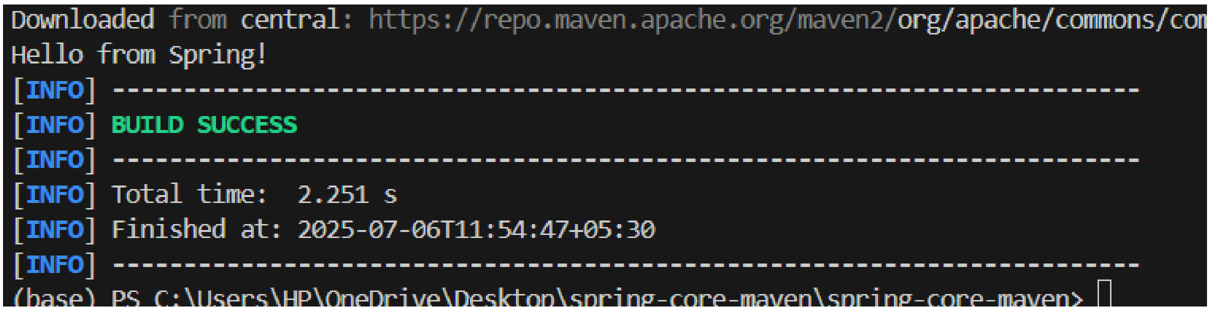
AppConfig.java

```
package com.example.springcore;
import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;
@Configuration
public class AppConfig {
 @Bean
   public Hello helloWorld() {
       return new Hello();
   }
 }
```

App.java

```
package com.example.springcore;
import org.springframework.context.ApplicationContext;
import org.springframework.context.annotation.AnnotationConfigApplicationContext;
public class App {
   public static void main(String[] args) {
        ApplicationContext context = new
AnnotationConfigApplicationContext(AppConfig.class);
        Hello helloWorld = context.getBean(Hello.class);
        helloWorld.sayHello();
    }
}
```

OUTPUT:



```
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/com
Hello from Spring!
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  2.251 s
[INFO] Finished at: 2025-07-06T11:54:47+05:30
[INFO] ------------------------------------------------------------------------
(base) PS C:\Users\HP\OneDrive\Desktop\spring-core-maven\spring-core-maven>
```

Exercise 2: Implementing Dependency Injection

GreetingService.java

```
package com.example;
public interface GreetingService {
    void sayHello();
}
```

GreetingServiceImpl.java

```
package com.example;
import org.springframework.stereotype.Service;
@Service
public class GreetingServiceImpl implements GreetingService {
    @Override
    public void sayHello() {
        System.out.println("Hello from GreetingService!");
    }
}
```

GreetingComponent.java

```
package com.example;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.stereotype.Component;

@Component

public class GreetingComponent {

  @Autowired

    private GreetingService greetingService;

    public void greet() {

        greetingService.sayHello();

    }

}
```

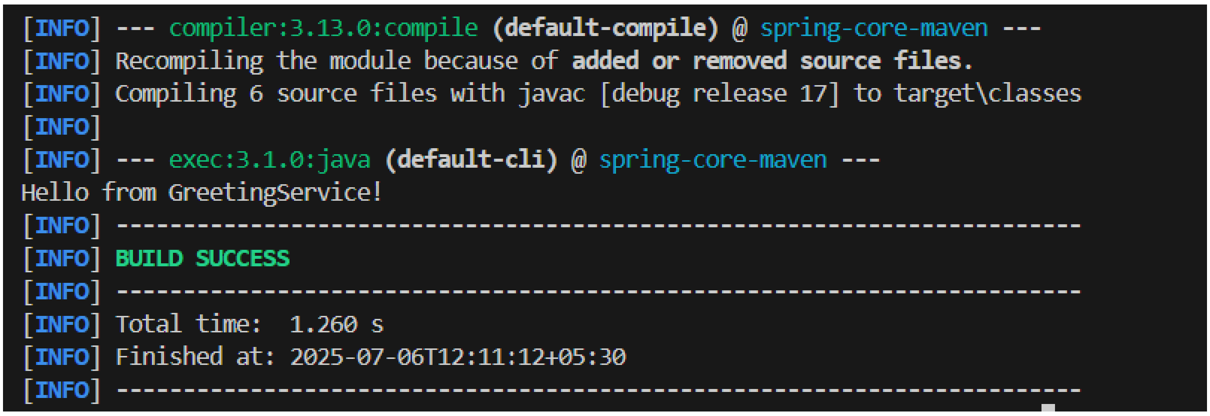
AppConfig.java

```
package com.example;

import org.springframework.context.annotation.ComponentScan;

import org.springframework.context.annotation.Configuration;

@Configuration

@ComponentScan(basePackages = "com.example")

public class AppConfig {

}
```

App.java

```
package com.example;

import org.springframework.context.ApplicationContext;

importorg.springframework.context.annotation.AnnotationConfigApplicationContext;

public class MainApp {

    public static void main(String[] args) {

        ApplicationContext context = new AnnotationConfigApplicationContext(AppConfig.class);
        GreetingComponent component = context.getBean(GreetingComponent.class);
        component.greet();
    }
}
```

Output:



```
[INFO] --- compiler:3.13.0:compile (default-compile) @ spring-core-maven ---
[INFO] Recompiling the module because of added or removed source files.
[INFO] Compiling 6 source files with javac [debug release 17] to target\classes
[INFO]
[INFO] --- exec:3.1.0:java (default-cli) @ spring-core-maven ---
Hello from GreetingService!
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.260 s
[INFO] Finished at: 2025-07-06T12:11:12+05:30
[INFO] ------------------------------------------------------------------------
```

EXERCISE 4: Creating and Configuring a Maven Project

GreetingService.java

```
package com.example;
public interface GreetingService {
    void sayHello();
}
```

GreetingServiceImpl.java

```
package com.example;
import org.springframework.stereotype.Service;
@Service
public class GreetingServiceImpl implements GreetingService {
    @Override
    public void sayHello() {
        System.out.println("Hello from GreetingService!");
    }
}
```

GreetingComponent.java

```
package com.example;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.stereotype.Component;

@Component

public class GreetingComponent {

  @Autowired

    private GreetingService greetingService;

    public void greet() {

        greetingService.sayHello();

    }

}
```

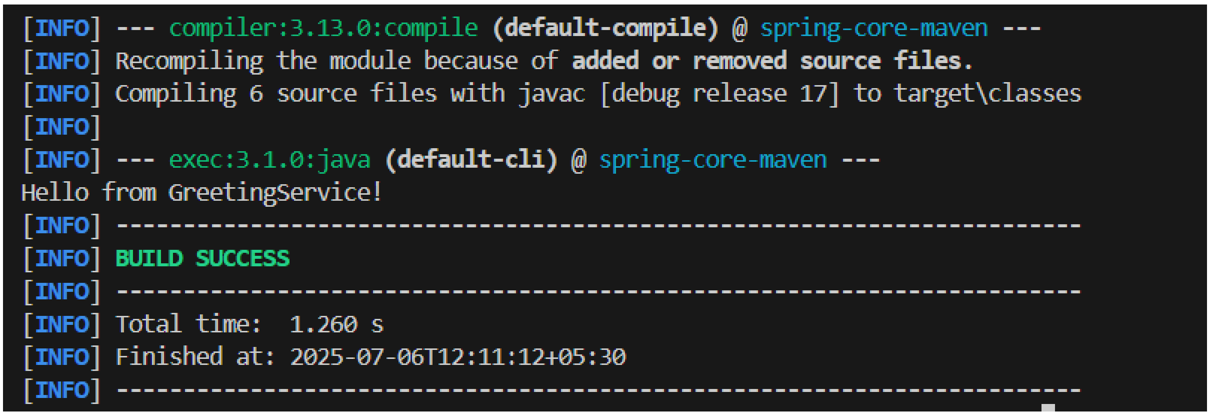
AppConfig.java

```
package com.example;

import org.springframework.context.annotation.ComponentScan;

import org.springframework.context.annotation.Configuration;

@Configuration

@ComponentScan(basePackages = "com.example")

public class AppConfig {

}
```

App.java

```
package com.example;

import org.springframework.context.ApplicationContext;

importorg.springframework.context.annotation.AnnotationConfigApplicationContext;

public class MainApp {

    public static void main(String[] args) {

        ApplicationContext context = new AnnotationConfigApplicationContext(AppConfig.class);
        GreetingComponent component = context.getBean(GreetingComponent.class);

        component.greet();

    }

}
```

Output:



```
[INFO] --- compiler:3.13.0:compile (default-compile) @ spring-core-maven ---
[INFO] Recompiling the module because of added or removed source files.
[INFO] Compiling 6 source files with javac [debug release 17] to target\classes
[INFO]
[INFO] --- exec:3.1.0:java (default-cli) @ spring-core-maven ---
Hello from GreetingService!
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  1.260 s
[INFO] Finished at: 2025-07-06T12:11:12+05:30
[INFO] ------------------------------------------------------------------------
```

EXERCISE 5: Configuring the Spring IoC Container

AppConfig.java

```
package com.example;

import org.springframework.context.annotation.Bean;

import org.springframework.context.annotation.Configuration;

@Configuration

public class AppConfig {


    @Bean

    public GreetingService greetingService() {

        return new GreetingServiceImpl();

    }


    @Bean

    public GreetingComponent greetingComponent() {

        return new GreetingComponent(greetingService());
    }
}
```

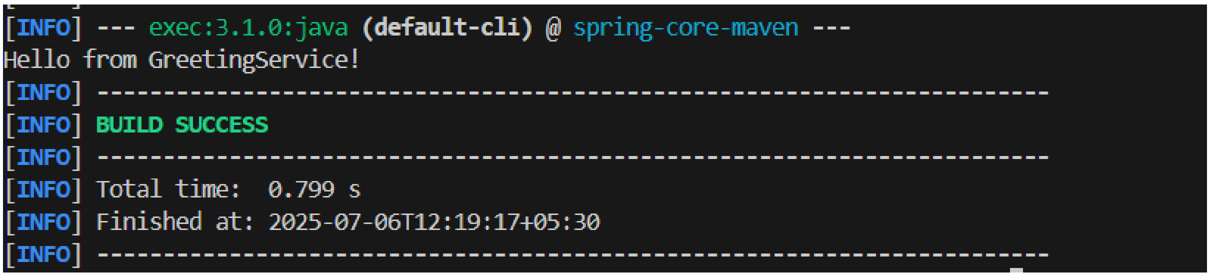
Modify GreetingComponent.java

```
package com.example;
public class GreetingComponent {
    private GreetingService greetingService;

    public GreetingComponent(GreetingService greetingService) {
        this.greetingService = greetingService;
    }

    public void greet() {
        greetingService.sayHello();
    }
}
```

MainApp.java

```
package com.example;
import org.springframework.context.ApplicationContext;
importorg.springframework.context.annotation.AnnotationConfigApplicationContext;
public class MainApp {
    public static void main(String[] args) {
        ApplicationContext context = new AnnotationConfigApplicationContext(AppConfig.class);
        GreetingComponent component = context.getBean(GreetingComponent.class);
        component.greet();
    }
}
```

OUTPUT:



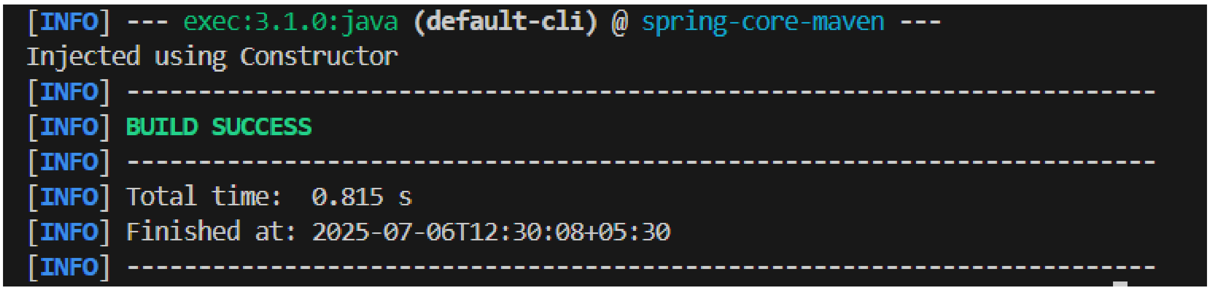
```
[INFO] --- exec:3.1.0:java (default-cli) @ spring-core-maven ---
Hello from GreetingService!
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.799 s
[INFO] Finished at: 2025-07-06T12:19:17+05:30
[INFO] ------------------------------------------------------------------------
```

EXERCISE 7: Implementing Constructor and Setter Injection

GreetingComponent.java

```
package com.example;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.stereotype.Component;

@Component

public class GreetingComponent {


   private GreetingService greetingService;


   // Constructor injection

   @Autowired

   public GreetingComponent(GreetingService greetingService) {

      this.greetingService = greetingService;

   }

}

 public void greet() {

      greetingService.sayHello();

   }

}
```

OUTPUT:



```
[INFO] --- exec:3.1.0:java (default-cli) @ spring-core-maven ---
Injected using Constructor
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  0.815 s
[INFO] Finished at: 2025-07-06T12:30:08+05:30
[INFO] ------------------------------------------------------------------------
```

EXERCISE 9: Creating a Spring Boot Application

DemoApplication.java

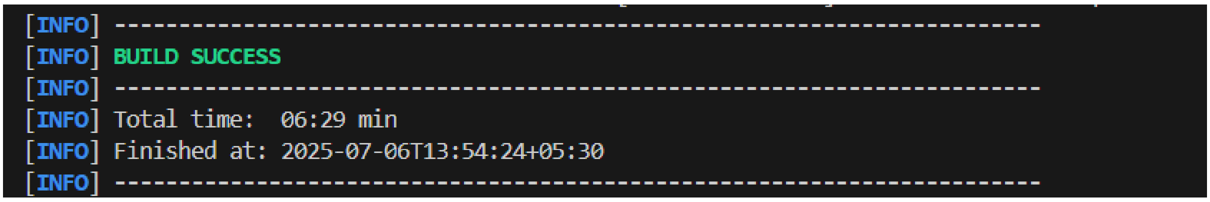
```
package com.example.springcore;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;


@SpringBootApplication

public class DemoApplication {

    public static void main(String[] args) {

        SpringApplication.run(DemoApplication.class, args);

    }

}
```

GreetingController.java

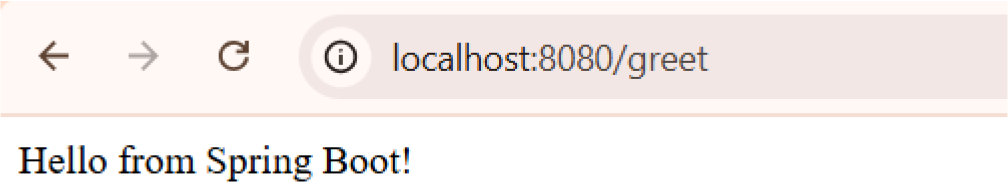
```
package com.example.springcore;

import org.springframework.web.bind.annotation.GetMapping;

import org.springframework.web.bind.annotation.RestController;


@RestController

public class GreetingController {


    @GetMapping("/greet")

    public String greet() {

        return "Hello from Spring Boot!";
```

```
  }
}
```

OUTPUT:



```
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  06:29 min
[INFO] Finished at: 2025-07-06T13:54:24+05:30
[INFO] ------------------------------------------------------------------------
```



Hello from Spring Boot!