

Microservices Setup: Account and Loan Services

Overview

This document describes the step-by-step process of creating two Spring Boot microservices for a bank application: Account Microservice and Loan Microservice. Each service is independent, has its own project and runs on different ports.

Prerequisites

- JDK 17 or later
- Maven installed (verify with ``mvn -v``)
- Eclipse or Spring Tool Suite (STS)
- Internet connection to generate Spring Boot project

Step 1: Folder Setup

1. Navigate to the D: drive.
2. Create a folder with your employee ID, e.g., D:\123456
3. Inside that folder, create a subfolder named ``microservices``.

Step 2: Create Account Microservice

1. Go to <https://start.spring.io>
2. Fill in the details as below:
 - Group: com.cognizant
 - Artifact: account
 - Dependencies: Spring Web, Spring Boot DevTools
3. Generate and extract the zip to D:\123456\microservices

Step 3: Build Account Project

```
cd D:\123456\microservices\account  
mvn clean package
```

Step 4: Import into Eclipse

1. Open Eclipse > File > Import > Existing Maven Projects
2. Select D:\123456\microservices\account

Step 5: Add AccountController.java

```
package com.cognizant.account.controller;  
  
import org.springframework.web.bind.annotation.*;  
import java.util.Map;  
  
@RestController  
@RequestMapping("/accounts")  
public class AccountController {  
  
    @GetMapping("/{number}")  
    public Map<String, Object> getAccountDetails(@PathVariable  
String number) {  
        return Map.of(  
            "number", number,  
            "type", "savings",  
            "balance", 234343  
        );  
    }  
}
```

Step 6: Ensure AccountApplication.java

```
package com.cognizant.account;  
  
import org.springframework.boot.SpringApplication;  
import  
org.springframework.boot.autoconfigure.SpringBootApplication;  
  
@SpringBootApplication
```

```
public class AccountApplication {  
    public static void main(String[] args) {  
        SpringApplication.run(AccountApplication.class, args);  
    }  
}
```

Step 7: Run & Test

<http://localhost:8080/accounts/00987987973432>

Step 8: Create Loan Microservice

Repeat the above steps for Loan microservice. Use `loan` as artifact name.

```
cd D:\123456\microservices\loan  
mvn clean package
```

Step 9: Add LoanController.java

```
package com.cognizant.loan.controller;  
  
import org.springframework.web.bind.annotation.*;  
import java.util.Map;  
  
@RestController  
@RequestMapping("/loans")  
public class LoanController {  
  
    @GetMapping("/{number}")  
    public Map<String, Object> getLoanDetails(@PathVariable String  
number) {  
        return Map.of(  
            "number", number,  
            "type", "car",  
            "loan", 400000,  
            "emi", 3258,  
            "tenure", 18  
        );  
    }  
}
```

```
}  
}
```

Step 10: LoanApplication.java

```
package com.cognizant.loan;  
  
import org.springframework.boot.SpringApplication;  
import  
org.springframework.boot.autoconfigure.SpringBootApplication;  
  
@SpringBootApplication  
public class LoanApplication {  
    public static void main(String[] args) {  
        SpringApplication.run(LoanApplication.class, args);  
    }  
}
```

Step 11: Change Port in application.properties

```
server.port=8081
```

Step 12: Run & Test

<http://localhost:8081/loans/H00987987972342>

Account Output:

Console output:

```
Problems Servers Terminal Data Source Explorer Properties Console X
<terminated> AccountApplication [Java Application] C:\Users\manas\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_21.0.7.v20250502-0916\j
:: Spring Boot :: (v3.5.3)
2025-07-20T16:55:11.524+05:30 INFO 3064 --- [account] [ restartedMain] c.cognizant.account.AccountApplication : S
2025-07-20T16:55:11.527+05:30 INFO 3064 --- [account] [ restartedMain] c.cognizant.account.AccountApplication : N
2025-07-20T16:55:11.598+05:30 INFO 3064 --- [account] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : D
2025-07-20T16:55:11.598+05:30 INFO 3064 --- [account] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : F
2025-07-20T16:55:12.597+05:30 INFO 3064 --- [account] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : T
2025-07-20T16:55:12.614+05:30 INFO 3064 --- [account] [ restartedMain] o.apache.catalina.core.StandardService : S
2025-07-20T16:55:12.615+05:30 INFO 3064 --- [account] [ restartedMain] o.apache.catalina.core.StandardEngine : S
2025-07-20T16:55:12.647+05:30 INFO 3064 --- [account] [ restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/] : I
2025-07-20T16:55:12.648+05:30 INFO 3064 --- [account] [ restartedMain] w.s.c.ServletWebServerApplicationContext : R
2025-07-20T16:55:13.061+05:30 WARN 3064 --- [account] [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : U
2025-07-20T16:55:13.083+05:30 WARN 3064 --- [account] [ restartedMain] ConfigServletWebServerApplicationContext : E
2025-07-20T16:55:13.101+05:30 INFO 3064 --- [account] [ restartedMain] .s.b.a.l.ConditionEvaluationReportLogger :
Error starting ApplicationContext. To display the condition evaluation report re-run your application with 'debug' en
2025-07-20T16:55:13.117+05:30 ERROR 3064 --- [account] [ restartedMain] o.s.b.d.LoggingFailureAnalysisReporter :
```

Web output:

```
< > ↺ localhost:8080/accounts/0... 🔍 ☆ 📁 ☆ 📄 🐼 ⋮
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Pretty-print ✓
{
  "type": "savings",
  "balance": 234343,
  "number": "00987987973432"
}
```

Loan Output:

Console Output:

```
Problems Servers Terminal Data Source Explorer Properties Console X
LoanApplication [Java Application] C:\Users\manas\p2\pool\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_21.0.7.v20250502-0916\jre\bin\javaw.exe (
:: Spring Boot :: (v3.5.3)
2025-07-20T16:43:04.532+05:30 INFO 15148 --- [loan] [ restartedMain] com.cognizant.loan.LoanApplication : Sta
2025-07-20T16:43:04.536+05:30 INFO 15148 --- [loan] [ restartedMain] com.cognizant.loan.LoanApplication : No
2025-07-20T16:43:04.584+05:30 INFO 15148 --- [loan] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : Dev
2025-07-20T16:43:04.584+05:30 INFO 15148 --- [loan] [ restartedMain] .e.DevToolsPropertyDefaultsPostProcessor : For
2025-07-20T16:43:05.659+05:30 INFO 15148 --- [loan] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tom
2025-07-20T16:43:05.679+05:30 INFO 15148 --- [loan] [ restartedMain] o.apache.catalina.core.StandardService : Sta
2025-07-20T16:43:05.679+05:30 INFO 15148 --- [loan] [ restartedMain] o.apache.catalina.core.StandardEngine : Sta
2025-07-20T16:43:05.712+05:30 INFO 15148 --- [loan] [ restartedMain] o.a.c.c.C.[Tomcat].[localhost].[/] : Ini
2025-07-20T16:43:05.713+05:30 INFO 15148 --- [loan] [ restartedMain] w.s.c.ServletWebServerApplicationContext : Roo
2025-07-20T16:43:06.114+05:30 WARN 15148 --- [loan] [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : Una
2025-07-20T16:43:06.159+05:30 INFO 15148 --- [loan] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tom
2025-07-20T16:43:06.167+05:30 INFO 15148 --- [loan] [ restartedMain] com.cognizant.loan.LoanApplication : Sta
2025-07-20T16:43:10.304+05:30 INFO 15148 --- [loan] [nio-8081-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Ini
2025-07-20T16:43:10.304+05:30 INFO 15148 --- [loan] [nio-8081-exec-1] o.s.web.servlet.DispatcherServlet : Ini
2025-07-20T16:43:10.305+05:30 INFO 15148 --- [loan] [nio-8081-exec-1] o.s.web.servlet.DispatcherServlet : Com
```

Web output:

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localhost:8081/loans/H00987987972342

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All Bookmarks

Pretty-print ☒

```
{
  "type": "car",
  "number": "H00987987972342",
  "tenure": 18,
  "emi": 3258,
  "loan": 400000
}
```

Service Summary

Service	Port	Sample Endpoint
Account Service	8080	http://localhost:8080/accounts/00987987973432
Loan Service	8081	http://localhost:8081/loans/H00987987972342