

Service Layer:

```
Mcare@MattCarey > CSCE548_Project_1 \main java -jar taskmanager-service/target/taskmanager-service-1.0-SNAPSHOT.jar

:: Spring Boot :: (v3.3.5)

2026-02-21T21:49:09.317-05:00 INFO 2232 --- [main] e.c.p.s.TaskManagerServiceApplication : Starting TaskManagerServiceApplication using Java 25.0.2 with PID 2232 (C:\Users\Mcare\.vscode\CSCE548\CSCE548_Project_1\taskmanager-service\target\taskmanager-service-1.0-SNAPSHOT.jar started by Mcare in C:\Users\Mcare\.vscode\CSCE548\CSCE548_Project_1)
2026-02-21T21:49:09.321-05:00 INFO 2232 --- [main] e.c.p.s.TaskManagerServiceApplication : No active profile set, falling back to 1 default profile: "default"
WARNING: A restricted method in java.lang.System has been called
WARNING: java.lang.System::load has been called by org.apache.tomcat.jni.Library in an unnamed module (jar:nested:/C:/Users/Mcare/.vscode/CSCE548/CSCE548_Project_1/taskmanager-service/target/taskmanager-service-1.0-SNAPSHOT.jar!/BOOT-INF/lib/tomcat-embed-core-10.1.31.jar!)
WARNING: Use --enable-native-access=ALL-UNNAMED to avoid a warning for callers in this module
2026-02-21T21:49:10.195-05:00 INFO 2232 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2026-02-21T21:49:10.195-05:00 INFO 2232 --- [main] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.31]
2026-02-21T21:49:10.239-05:00 INFO 2232 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2026-02-21T21:49:10.240-05:00 INFO 2232 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 865 ms
2026-02-21T21:49:10.612-05:00 INFO 2232 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080 (http) with context path '/'
2026-02-21T21:49:10.629-05:00 INFO 2232 --- [main] e.c.p.s.TaskManagerServiceApplication : Started TaskManagerServiceApplication in 1.678 seconds (process running for 2.087)
2026-02-21T21:49:54.760-05:00 INFO 2232 --- [nio-8080-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2026-02-21T21:49:54.760-05:00 INFO 2232 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2026-02-21T21:49:54.761-05:00 INFO 2232 --- [nio-8080-exec-1] o.s.web.servlet.DispatcherServlet : Completed initialization in 1 ms
```

Front end console:

(AI conveniently wrote a tester that demonstrates invocation of all endpoints defined in service layer)

```
Mcare@MattCarey > CSCE548_Project_1 \main java -jar taskmanager-console-client/target/taskmanager-console-client-1.0-SNAPSHOT.jar

Service Console Frontend
API base URL: http://localhost:8080/api

Menu:
1) Run full CRUD demo through service layer
Q) Quit
Choose: 1

=== USER CRUD DEMO ===

Create user -> HTTP 201
{"userId":11,"name":"Service Demo User"}

Get created user -> HTTP 200
{"userId":11,"name":"Service Demo User"}

List users -> HTTP 200
[{"userId":1,"name":"Alice"}, {"userId":2,"name":"Bob"}, {"userId":3,"name":"Charlie"}, {"userId":4,"name":"Dana"}, {"userId":5,"name":"Evan"}, {"userId":6,"name":"Matt"}, {"userId":11,"name":"Service Demo User"}]

Update user -> HTTP 200
{"userId":11,"name":"Service Demo User Updated"}

Get updated user -> HTTP 200
{"userId":11,"name":"Service Demo User Updated"}

Delete user -> HTTP 204

Get deleted user (expect 404) -> HTTP 404

=== CATEGORY CRUD DEMO ===

Create category -> HTTP 201
{"categoryId":10,"name":"Service Demo Category"}

Get created category -> HTTP 200
{"categoryId":10,"name":"Service Demo Category"}
```



```
Update task -> HTTP 200
{"taskId":53,"userId":12,"categoryId":11,"description":"Task updated from console client","completed":true}

Get updated task -> HTTP 200
{"taskId":53,"userId":12,"categoryId":11,"description":"Task updated from console client","completed":true}

Delete task -> HTTP 204

Get deleted task (expect 404) -> HTTP 404

Delete task owner user -> HTTP 204

Delete task category -> HTTP 204

Final users List -> HTTP 200
[{"userId":1,"name":"Alice"}, {"userId":2,"name":"Bob"}, {"userId":3,"name":"Charlie"}, {"userId":4,"name":"Dana"}, {"userId":5,"name":"Evan"}, {"userId":6,"name":"Matt"}]

Final categories List -> HTTP 200
[{"categoryId":1,"name":"School"}, {"categoryId":2,"name":"Work"}, {"categoryId":3,"name":"Personal"}, {"categoryId":4,"name":"Health"}, {"categoryId":5,"name":"Errands"}]

Menu:
1) Run full CRUD demo through service layer
Q) Quit
Choose: Q

McCare@MattCarey CSCE548_Project_1 /main
```