

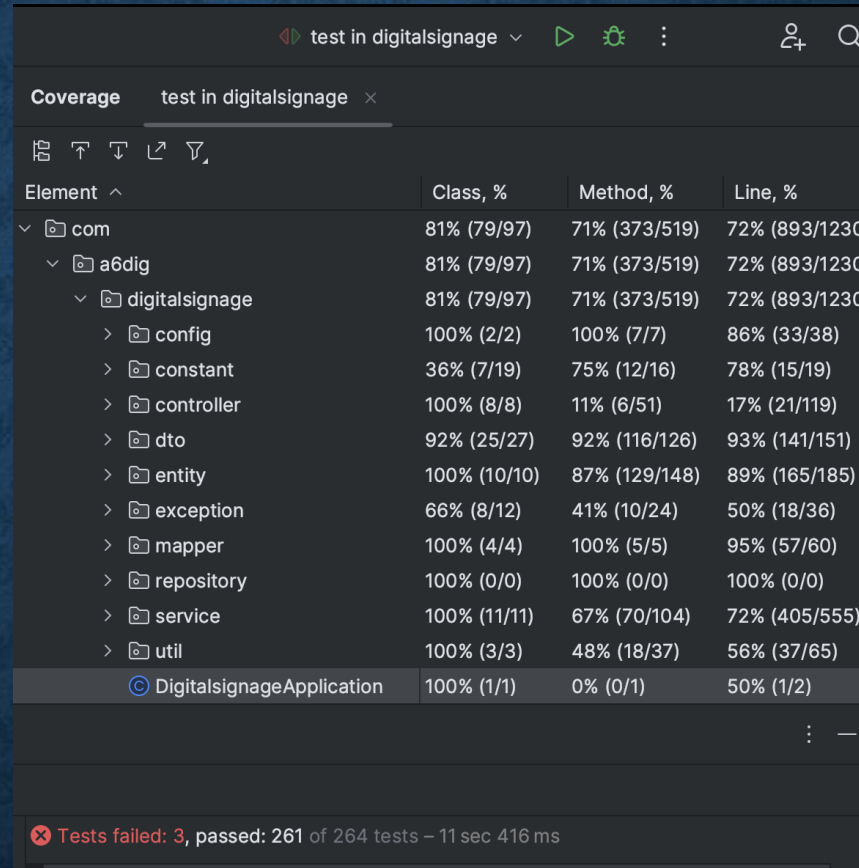
# SYED MOHAMMED A. | TEAM 6 – A6DIG

## • SYSTEM DESIGN

- Requirements driven prototyping
- Database ERD design
- UML Class Diagram & Backend Architecture
- Defined API Structure and Documentation

## • IMPLEMENTATION

- Implemented backend code for: Layout, Layout Slot, Module, Ad Collection, Ad Content.
- Applied Test-Driven Development (TDD).
  - Unit Test (Mock)
  - Integration Test
- Applied Design Pattern: Facade, Builder, Factory.



Element ^	Class, %	Method, %	Line, %
com	81% (79/97)	71% (373/519)	72% (893/1230)
a6dig	81% (79/97)	71% (373/519)	72% (893/1230)
digitalsignage	81% (79/97)	71% (373/519)	72% (893/1230)
config	100% (2/2)	100% (7/7)	86% (33/38)
constant	36% (7/19)	75% (12/16)	78% (15/19)
controller	100% (8/8)	11% (6/51)	17% (21/119)
dto	92% (25/27)	92% (116/126)	93% (141/151)
entity	100% (10/10)	87% (129/148)	89% (165/185)
exception	66% (8/12)	41% (10/24)	50% (18/36)
mapper	100% (4/4)	100% (5/5)	95% (57/60)
repository	100% (0/0)	100% (0/0)	100% (0/0)
service	100% (11/11)	67% (70/104)	72% (405/555)
util	100% (3/3)	48% (18/37)	56% (37/65)
DigitalsignageApplication	100% (1/1)	0% (0/1)	50% (1/2)

Tests failed: 3, passed: 261 of 264 tests – 11 sec 416 ms

```
Command Prompt - ssh smaaa001@users.cs.umb.edu
smaaa001@pe15:~/cs410$ curl -X POST \
> "https://cs410-digital-signage.onrender.com/api/layouts" \
> -d '{
>   "name": "Another Layout",
>   "cols": 2,
>   "rows": 2
> }' \
> -H "Content-type: application/json" -s | json_pp
{
  "data": {
    "cols": 2,
    "createdAt": "2026-05-03T08:43:47.714630666",
    "id": 2,
    "name": "Another Layout",
    "rows": 2,
    "slots": [],
    "updatedAt": "2026-05-03T08:43:47.714650267"
  },
  "errors": [],
  "message": "Layout created successfully.",
  "status": 201
}
smaaa001@pe15:~/cs410$
```

```
Command Prompt - ssh smaaa001@users.cs.umb.edu
smaaa001@pe15:~/cs410$ curl -X GET \
> "https://cs410-digital-signage.onrender.com/api/layouts" \
> -s | json_pp
{
  "data": [
    {
      "cols": 2,
      "createdAt": "2026-05-03T08:43:47.714631",
      "id": 2,
      "name": "Another Layout",
      "rows": 2,
      "slots": [],
      "updatedAt": "2026-05-03T08:43:47.71465"
    }
  ],
  "errors": [],
  "message": "",
  "status": 200
}
smaaa001@pe15:~/cs410$
```

Github : [dev-syed branch](#)

Artifacts : [/courses/cs410/s26/hdeblois/GROUP2/smaaa001\\_artifacts.pdf](#)

Deployed Backend : <https://cs410-digital-signage.onrender.com/api/>

# T-SHAPED SKILLS

Prototyping System Design ERD Design UML API Docs Agile Git/Github Collaboration

JAVA  
OOP  
SPRING BOOT  
JPA  
DESIGN PATTERNS  
TDD MINDSET

# ADDITIONAL COMMENTS & PLANS

## What Went Well

- Strong backend foundation
- TDD helped catch bugs early
- Continuous documentation process reduced integration issues

## Challenges

- Time management for testing vs feature implementation
- No early UML design led to weaker adoption of SOLID principles and required refactoring later

## Next Steps

- Research industry practice for REST API structure and how they are implemented
- Add more integration and end to end tests
- Refactor code using better OOP design patterns

Research Paper : [Git's Distributed Architecture and Branching Strategies](#)