

Full-Stack Computer Science Project Report

Jonas W., Malte, Joachin

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Contents

1 System Architecture

The system follows a three-tier architecture consisting of:

- Frontend: User interface layer
- Backend: Application logic and API services
- Database: Data persistence layer

2 Implementation

2.1 Backend Development

The backend is implemented using Node.js and Express framework:

```
using Microsoft.AspNetCore.Builder;
using Microsoft.AspNetCore.Hosting;
using Microsoft.Extensions.DependencyInjection;

var builder = WebApplication.CreateBuilder(args);
builder.Services.AddCors(options =>
{
    options.AddPolicy("AllowAll", builder =>
    {
        builder.AllowAnyOrigin()
            .AllowAnyMethod()
            .AllowAnyHeader();
    });
});
var app = builder.Build();
app.UseCors("AllowAll");
app.MapGet("/api/users", () => new { Message = "Users endpoint" });
app.Run();
```

2.2 Database Design

Database implementation using SQL:

```
CREATE TABLE users (
    id INT PRIMARY KEY AUTO_INCREMENT,
```

```
username VARCHAR(50) UNIQUE NOT NULL,  
email VARCHAR(100) UNIQUE NOT NULL,  
created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP  
);  
  
INSERT INTO users (username, email)  
VALUES ('john_doe', 'john@example.com');
```

2.3 Frontend Development