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ST.MOTHE THERESA ENGINEERING COLLEGE

COMPUTE SCIENCE AND ENGINEERING

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Completed the project named as

Phase-2

ANGULAR JS WITH SQL INTEGRATING

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Phase 2 Project Report

Topic: AngularJS with SQL Integration

Problem Statement

Modern web applications require responsive frontends and robust backend integration. AngularJS provides dynamic, interactive user interfaces,
while SQL databases are widely used to store and manage data. However, seamless integration of AngularJS with SQL through REST APIs remains challenging due to security,
real-time synchronization, and scalability issues.

Objective

To develop a responsive web application using AngularJS as the frontend framework and SQL as the backend database, integrated through REST APIs
to enable efficient data management and real-time interaction.

Aim 1

To design a dynamic AngularJS UI for CRUD operations (Create, Read, Update, Delete).

Aim 2

To integrate AngularJS with SQL through a REST API (Node.js/Express) ensuring secure and scalable communication.

Tech Stack Selection

- Frontend: AngularJS
- Backend: Node.js with Express
- Database: MySQL / SQL Server
- Tools: VS Code, Postman
- Libraries: AngularJS HTTP service

UI Structure

The UI will consist of:
- Input form to add users
- List to display all users
- Action buttons for update and delete
- Responsive layout

Data Handling

AngularJS will use $http service to send GET, POST, PUT, and DELETE requests to REST API endpoints.
The backend will handle requests and interact with the SQL database.

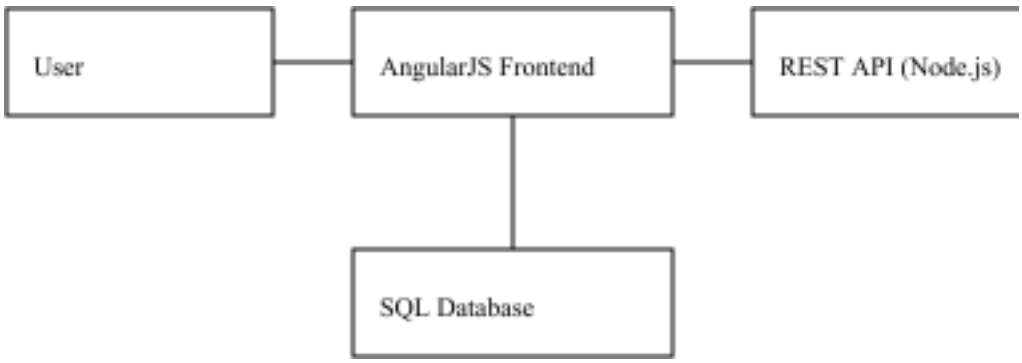
Component

The application consists of:

- User Component (form, list)
- Service Component (API communication)

- Backend Component (Node.js routes)
- Database Component (SQL schema)

Basic Flow Chart



Program (Frontend AngularJS)

```
<!DOCTYPE html>
<html ng-app="myApp">
<head>
  <script src="https://ajax.googleapis.com/ajax/libs/angularjs/1.8.2/angular.min.js"></script>
</head>
<body ng-controller="MainCtrl">

  <h2>User Data</h2>
  <input type="text" ng-model="newUser.name" placeholder="Enter name">
  <button ng-click="addUser()">Add User</button>

  <ul>
    <li ng-repeat="user in users">
      {{user.name}}
      <button ng-click="deleteUser(user.id)">Delete</button>
    </li>
  </ul>

<script>
  var app = angular.module('myApp', []);
  app.controller('MainCtrl', function($scope, $http) {
    $http.get('/api/users').then(function(response){
      $scope.users = response.data;
    });

    $scope.addUser = function(){
      $http.post('/api/users', $scope.newUser).then(function(response){
        $scope.users.push(response.data);
        $scope.newUser = {};
      });
    };

    $scope.deleteUser = function(id){
      $http.delete('/api/users/' + id).then(function(){
        $scope.users = $scope.users.filter(u => u.id !== id);
      });
    };
  });
</script>
</body>
</html>
```

Output (Sample UI)

Conclusion

This Phase 1 report demonstrates the initial design and planning of an AngularJS frontend integrated with an SQL backend through REST API. The project outlines the objectives, aims, tech stack, UI structure, and data handling methods. A basic program and flowchart are provided, along with a simulated output UI. This establishes a strong foundation for Phase 2, which will focus on advanced features, testing, and deployment.