

AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH (AIUB)
Faculty of Science and Technology (FST)
Department of Computer Science (CS)
Course: Web Technologies

Lab Task 02: Weather Forecast Application

Instruction:

- 1. Complete the task**
- 2. After completion, push the code in the GitHub repository.**

Scenario:

A weather service needs a frontend application to display 7-day forecasts. Create an application that fetches weather data in JSON format and displays it with appropriate icons and styling.

Steps:

Build a weather forecast app:

- **Backend (weather.php):**
 - Return JSON data for 7-day forecast
 - Include: date, temperature (high/low), condition, humidity, wind_speed, icon

json

```
{
  "city": "New York",
  "forecast": [
    {
      "date": "2024-12-30",
      "temp_high": 45,
      "temp_low": 32,
      "condition": "Sunny",
      "humidity": 65,
      "wind_speed": 10
    }
  ] // 7 days
}
```

- **Frontend (weather.html):**
 - City selector dropdown (5 cities)
 - Current date and time display
 - Display forecast cards for each day:
 - Day of week

- Weather icon (use emoji or font icons)
 - High/Low temperature
 - Condition description
 - Humidity and wind speed
- Temperature unit toggle (°C/°F)
- Refresh button to fetch new data
- **AJAX & JSON:**
 - Fetch data when city changes
 - Use JSON.parse() to process response
 - Convert temperatures if unit changed
 - Handle JSON parsing errors gracefully
 - Display loading state during fetch
 - Animate card appearance
- **Additional Features:**
 - Find hottest and coldest day
 - Calculate average temperature
 - Highlight days with rain/snow
 - Responsive design for mobile