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DATE : **28**-09-2025

Completed the project named as

Phase 3

TECHNOLOGY PROJECT NAME : Dynamic Image Slider

SUBMITTED BY

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Phase 3 – MVP Implementation

1. Project Setup

✅ Backend Setup:

- **Tech Stack:** Node.js, Express.js, MongoDB (optional for metadata)
- **Project Structure:**
- `backend/`
- `├── routes/`
- `│   └── imageRoutes.js`
- `├── controllers/`
- `│   └── imageController.js`
- `├── uploads/`
- `├── app.js`
- `└── package.json`
- **Dependencies Used:**
    - `express` – for API routing
    - `multer` – for image upload handling
    - `cors` – for cross-origin support
    - `mongoose` – if MongoDB is used
    - `dotenv` – for environment variables

✅ Frontend Setup:

- **Tech Stack:** React.js, Axios
- **Project Structure:**
- `frontend/`
- `├── components/`
- `│   └── ImageSlider.jsx`
- `│   └── UploadForm.jsx`
- `├── App.js`
- `├── index.js`
- `└── package.json`
- **Libraries Used:**
    - `axios` – to make API requests
    - `react-slick` or custom CSS for slider
    - `react-dropzone` or basic HTML file input for uploads

2. Core Features Implementation

📷 Feature 1: Image Upload (Admin Only)

- **Frontend:** UploadForm.jsx with file input and Axios POST request.
- **Backend Endpoint:**
- `POST /api/images`
- **Functionality:**
  - Accepts image file and optional title
  - Stores file in `/uploads` folder or cloud (e.g., Cloudinary)
  - Returns uploaded image metadata (URL, title)

🔄 Feature 2: Dynamic Image Slider (Frontend)

- **Component:** `ImageSlider.jsx`
- **Functionality:**
  - Fetches images from backend
  - Displays them in a loop using `setInterval` or `react-slick`
  - Includes navigation arrows or dots (optional)
- **Backend Endpoint:**
- `GET /api/images`

❌ Feature 3: Image Deletion (Optional for Admin)

- **Backend Endpoint:**
- `DELETE /api/images/:id`
- **Frontend:** Admin interface (not visible to normal users)
- **Functionality:** Deletes selected image from backend and refreshes slider

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3. API Endpoint Summary

Method	Endpoint	Description
GET	`/api/images`	Get all uploaded images
POST	`/api/images`	Upload a new image

Method	Endpoint	Description
DELETE	`/api/images/:id`	Delete image by ID

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4. Sample API Response

```
[
  {
    "id": "1",
    "url": "http://localhost:5000/uploads/image1.jpg",
    "title": "Sample Image",
    "createdAt": "2025-09-25T10:30:00Z"
  }
]
```

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5. Implementation Screenshots / Wireframes *(To be added in final report)*

- Slider displaying 3 images
- Upload form with file chooser and title input
- Admin view with delete option (optional)

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6. Testing & Validation

- ✅ Upload works for JPG, PNG formats
- ✅ Images are served via API and load in slider
- ✅ Slider transitions smoothly (autoplay every 3 seconds)
- ✅ Handles empty states (no images)
- ✅ Optional admin functions tested via Postman

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7. Conclusion

The MVP version of the Dynamic Image Slider was successfully implemented using a full-stack approach. It allows real-time updates to slider images via a simple backend API. The frontend displays images dynamically, enhancing user engagement and flexibility for various use cases like galleries, portfolios, and product displays.

Next Steps (Post-MVP):

- Add cloud image storage (e.g., Cloudinary)
- Authentication for admin operations
- Drag-and-drop image reordering
- Caption overlay on images
