

# Smart Delivery Management System

## Overview

Build a modern delivery management dashboard focusing on partner management and smart order assignments.

## Deliverables

1. GitHub repository
2. Working demo
3. README documentation
4. API documentation

## Data Types

```
type DeliveryPartner = {  
  _id?: string;  
  name: string;  
  email: string;  
  phone: string;  
  status: 'active' | 'inactive';  
  currentLoad: number; // max: 3  
  areas: string[];  
  shift: {  
    start: string; // HH:mm  
    end: string; // HH:mm  
  };  
  metrics: {
```

```
    rating: number;
    completedOrders: number;
    cancelledOrders: number;
};
}
```

```
type Order = {
  _id: string;
  orderNumber: string;
  customer: {
    name: string;
    phone: string;
    address: string;
  };
  area: string;
  items: {
    name: string;
    quantity: number;
    price: number;
  }[];
  status: 'pending' | 'assigned' | 'picked' | 'delivered';
  scheduledFor: string; // HH:mm
  assignedTo?: string; // partner ID
  totalAmount: number;
  createdAt: Date;
  updatedAt: Date;
```

```
}
```

```
type Assignment = {  
  orderId: string;  
  partnerId: string;  
  timestamp: Date;  
  status: 'success' | 'failed';  
  reason?: string;  
}
```

```
type AssignmentMetrics = {  
  totalAssigned: number;  
  successRate: number;  
  averageTime: number;  
  failureReasons: {  
    reason: string;  
    count: number;  
  }[];  
}
```

## Required Features

### 1. Partner Management

- Partner registration form
- Partner list view
- Profile editing
- Area management
- Shift scheduling

## 2. Order Processing

- Orders dashboard
- Status tracking
- Assignment history
- Performance metrics

## 3. Assignment System

### Required Pages

#### Dashboard (/)

- Key metrics cards
- Active orders map
- Partner availability status
- Recent assignments

#### Partners (/partners)

```
type PartnersPageProps = {  
  partners: DeliveryPartner[];  
  metrics: {  
    totalActive: number;  
    avgRating: number;  
    topAreas: string[];  
  };  
}
```

#### Orders (/orders)

```
type OrdersPageProps = {  
  orders: Order[];  
  filters: {  
    status: string[];  
    areas: string[];  
  };  
}
```

```
    date: string;
  };
}
```

## Assignment Dashboard (/assignments)

```
type AssignmentPageProps = {
  activeAssignments: Assignment[];
  metrics: AssignmentMetrics;
  partners: {
    available: number;
    busy: number;
    offline: number;
  };
}
```

## API Routes

```
// Partner routes
GET    /api/partners
POST   /api/partners
PUT    /api/partners/[id]
DELETE /api/partners/[id]

// Order routes
GET    /api/orders
POST   /api/orders/assign
PUT    /api/orders/[id]/status

// Assignment routes
GET    /api/assignments/metrics
POST   /api/assignments/run
```

## Evaluation Criteria

1. TypeScript implementation

2. Component organization
3. State management
4. Error handling
5. Loading states
6. Mobile responsiveness
7. Assignment algorithm efficiency