

IDD Decision System

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1 Project Overview

The IDD Decision System is a web-based assessment tool designed to help construction professionals determine if an Integrated Design Delivery (IDD) approach is suitable for their projects. Developed by Joshua Amo Larbi, this application evaluates project characteristics across multiple dimensions and provides a comprehensive score with targeted recommendations.

2 What is IDD?

Integrated Design Delivery (IDD) is a project lifecycle delivery approach that employs Design Thinking (DT) to seamlessly integrate work processes and stakeholders. This collaborative approach can lead to more efficient, sustainable, and successful construction projects when applied in the right circumstances.

3 Project Features

- Interactive assessment questionnaire
- Real-time progress tracking
- Comprehensive scoring system with weighted components
- Detailed results analysis with component breakdown
- Targeted recommendations based on responses
- Responsive design for desktop and mobile devices
- Print functionality for results sharing

4 Technical Implementation

4.1 Technology Stack

- **React:** Front-end JavaScript library for building the user interface
- **React Router:** For navigation between different screens
- **Context API:** For state management across components
- **CSS3:** For styling and responsive design
- **HTML5:** For semantic markup

4.2 Project Structure

```
idd-assessment-quiz/  
  public/  
    index.html  
    construction-workers.jpg  
  src/  
    components/  
      ProgressBar.js  
      ProgressBar.css  
      QuestionCard.js  
      QuestionCard.css  
    context/  
      QuizContext.js  
    data/  
      questions.js  
    screens/  
      HomeScreen.js  
      HomeScreen.css  
      QuizScreen.js  
      QuizScreen.css  
      ResultScreen.js  
      ResultScreen.css  
    App.js  
    App.css  
    index.js  
    index.css  
  package.json  
  README.md
```

4.3 Key Components

1. **Home Screen:** Introduces the system and provides background on IDD
2. **Quiz Screen:** Presents questions one at a time with progress tracking
3. **Results Screen:** Displays the final score with recommendations
4. **Quiz Context:** Manages state and scoring calculations
5. **Question Card:** Renders individual questions with answer options
6. **Progress Bar:** Shows completion status of the assessment

5 Assessment Methodology

5.1 Scoring System

The scoring system is based on weighted components and questions:

1. Each component (e.g., "Project Sustainability Characteristics") has a weight that contributes to the overall score
2. Questions within each component have individual weights
3. "Yes" answers contribute positively to the score
4. The final score is calculated on a scale of 0-100%

5.2 Score Interpretation

- **Below 40%:** Unsuitable for IDD
- **40-60%:** Requires Modification - recommendations provided
- **60-80%:** Suitable with Caution - recommendations provided
- **Above 80%:** Highly Suitable for IDD

5.3 Component Categories

The assessment evaluates 9 key component areas:

1. Project Sustainability Characteristics (15%)
2. Industry Culture and Project Expectations (20%)
3. Project Standards and Organizational Factors (17%)
4. Project Requirements and Capacity (16%)
5. Human Resource Factors (8%)
6. Statutory and Project Duration Factors (8%)
7. Process and Resource Supply Factors (8%)
8. Stakeholder Support Factors (4%)
9. Project Safety Factors (4%)

6 How to Run the Project

6.1 Prerequisites

- Node.js (v14.0.0 or later)
- npm (v6.0.0 or later)

6.2 Installation Steps

1. Clone the repository:

```
git clone <repository-url>
cd idd-assessment-quiz
```

2. Install dependencies:

```
npm install
```

3. Start the development server:

```
npm start
```

4. Open your browser and navigate to:

```
http://localhost:3000
```

6.3 Building for Production

To create a production build:

```
npm run build
```

The build artifacts will be stored in the **build/** directory.

7 Design Principles

7.1 User Experience

- **Progressive Disclosure:** Presenting one question at a time to reduce cognitive load
- **Visual Feedback:** Using color coding to indicate score categories
- **Guided Navigation:** Clear navigation path through the assessment
- **Actionable Results:** Specific recommendations for improvement

7.2 Responsive Design

The application is designed to work seamlessly on:

- Desktop computers
- Tablets
- Mobile phones

Responsive features include:

- Flexible layouts
- Adaptive text sizing
- Touch-friendly interaction elements
- Print-optimized styles for sharing results

8 Future Enhancements

Potential future improvements include:

- User authentication for saving and retrieving assessments
- Comparative analysis with industry benchmarks
- Detailed reporting with charts and graphs
- Export functionality (PDF, Excel)
- Multi-language support
- Case studies and examples for reference

9 Conclusion

The IDD Decision System provides construction professionals with a valuable tool for determining the suitability of Integrated Design Delivery for their projects. By evaluating multiple factors and providing targeted recommendations, the system helps stakeholders make informed decisions that can lead to more successful project outcomes.