

A FINAL PROJECT FOR DCIT 2b A LAB



QUIZ WHIZ

Play to Learn



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QUIZWHIZ: PLAY TO LEARN

QuizWhiz is an engaging and interactive quiz app designed to make learning fun and effective. Whether you're looking to test your knowledge in various subjects in the field of Information Technology or simply enjoy a challenging game, QuizWhiz offers a dynamic learning experience through its diverse range of quizzes. Perfect for students, educators, and trivia enthusiasts, the app combines educational content with game-like elements to keep users motivated and entertained.

Features:

- **Diverse Categories:** Choose from a wide range of topics including CSS, Flutter, Java, JavaScript, PHP, HTML, Python, and C++.
- **Difficulty Levels:** Play quizzes in different difficulty levels—easy, medium, and hard—to match your expertise and challenge yourself.
- **Interactive Gameplay:** Answer multiple-choice questions and receive instant feedback on your answers.
- **Timed Challenges:** Test your speed with timed quizzes that add an extra layer of excitement.
- **User-Friendly Interface:** Navigate through quizzes easily with a clean and intuitive design.
- **Educational Value:** Improve your knowledge and skills in various subjects related to Information Technology through well-crafted questions.

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QUIZWHIZ: PLAY TO LEARN



Tap the “**Get Started**” button to play.



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◀ Select a Category

This screenshot shows the first page of the QuizWhiz app's category selection. It features a grid of eight cards, each representing a different technology category:

- HTML**: Learn HTML basics. (Icon: HTML 5)
- CSS**: Learn CSS styling. (Icon: CSS 3)
- Flutter**: Learn Flutter framework. (Icon: Flutter logo)
- C++**: Learn C++ programming. (Icon: C# logo)
- Java**: Learn Java programming. (Icon: Java coffee cup)
- PHP**: Learn PHP scripting. (Icon: PHP logo)
- Python**: Learn Python language. (Icon: Python logo)
- JavaScript**: Learn JavaScript coding. (Icon: JS logo)

The background has a purple-to-red gradient, and the bottom navigation bar is black with white icons.

◀ Select a Category

This screenshot shows the second page of the QuizWhiz app's category selection, continuing from the previous grid. It contains four more cards:

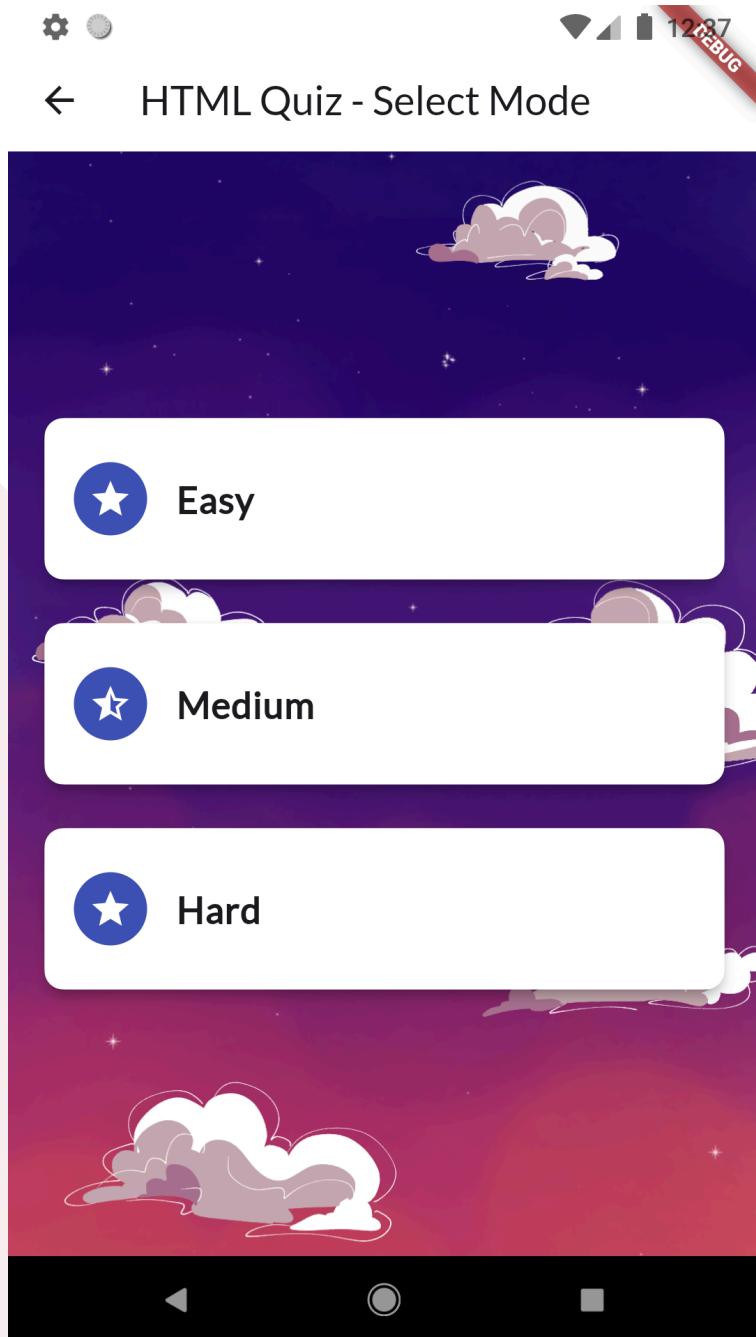
- Flutter**: Learn Flutter framework. (Icon: Flutter logo)
- C++**: Learn C++ programming. (Icon: C# logo)
- Java**: Learn Java programming. (Icon: Java coffee cup)
- PHP**: Learn PHP scripting. (Icon: PHP logo)

The interface is identical to the first screen, with a purple-to-red gradient background and a black navigation bar at the bottom.

Choose from a variety of
categories related to Information
Technology.



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Each category has three modes - easy, medium, and hard. Choose whatever you like!



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The screenshot shows a mobile application interface for an HTML quiz. At the top, there's a navigation bar with a back arrow and the text "HTML Quiz (easy mode)". A red "DEBUG" ribbon is visible in the top right corner. Below the bar, the main question is displayed: "What is the correct HTML element for inserting an image?". Four answer options are shown in boxes: "<picture>" (gray box), "" (green box with a checkmark), "<src>" (gray box), and "<image>" (gray box). At the bottom left, a button says "Next Question". The bottom center displays the score "Score: 20/100". The background features a dark sky with clouds and stars.

There's a **timer bar on top of the screen for a more challenging experience.**



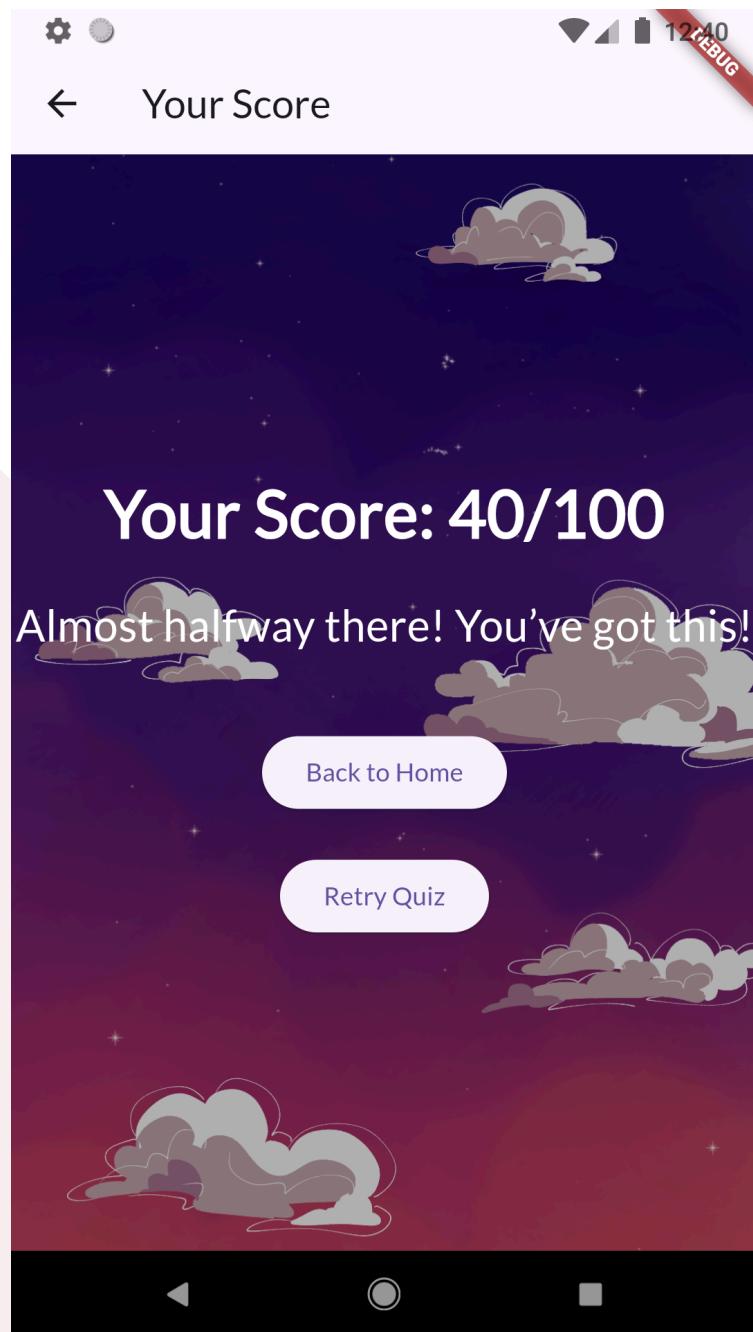
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The screenshot shows a mobile application interface for an "HTML Quiz (easy mode)". At the top, there are standard Android status icons (signal, battery, time 12:38, and a red "DEBUG" ribbon). Below that is a back arrow and the title "HTML Quiz (easy mode)". The main content area has a dark background with a night sky and clouds. A question is displayed: "What is the correct HTML element for the largest heading?". Four answer options are shown in boxes: "<heading>" (gray box), "<h6>" (red-bordered box with a red "X"), "<h1>" (green-bordered box with a green checkmark), and "<head>" (gray box). At the bottom left is a "Next Question" button, and at the bottom center is a "Score: 10/100" message.

When the wrong answer is ticked, don't fret! We'll show you the correct ones.



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Hurray! When you've finished a quiz, your score will be shown together with a motivational quote.



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← CSS Quiz (hard mode)

How do you apply a style to the first child element of a parent?

- parent:first-child { style }
- parent > first-child { style }
- parent :first-child { style }
- parent:first { style }

Next Question

Score: 0/100

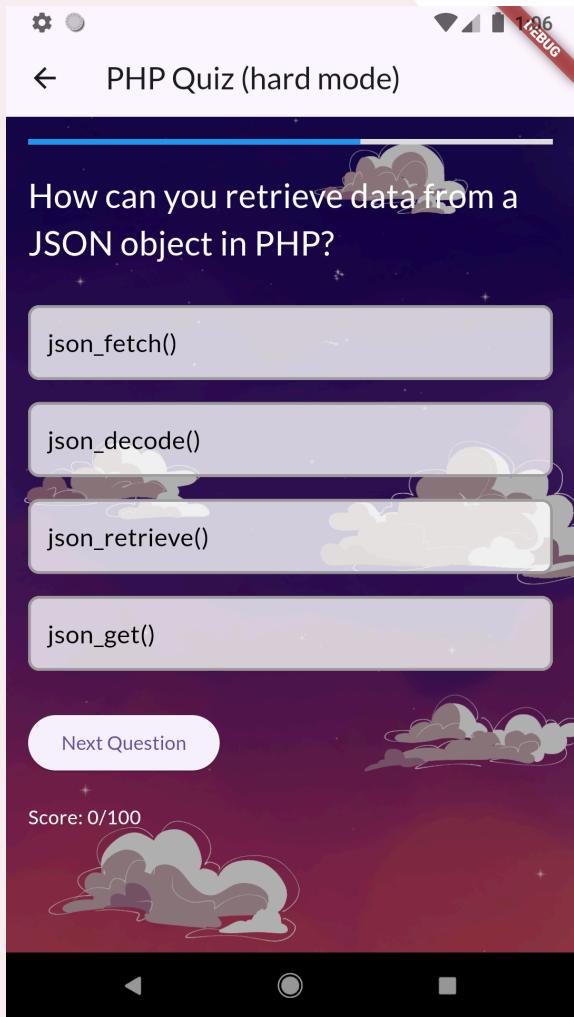
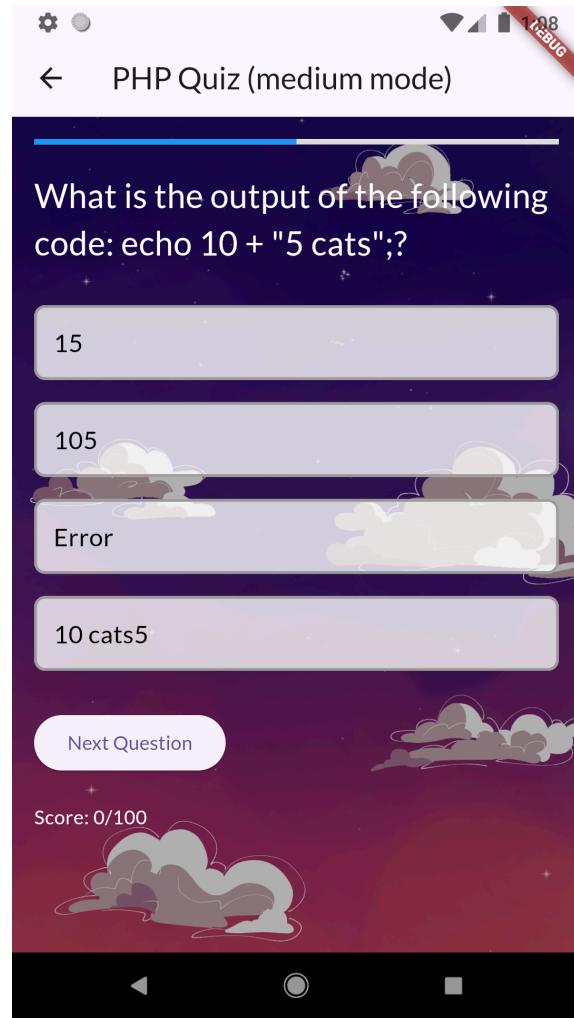
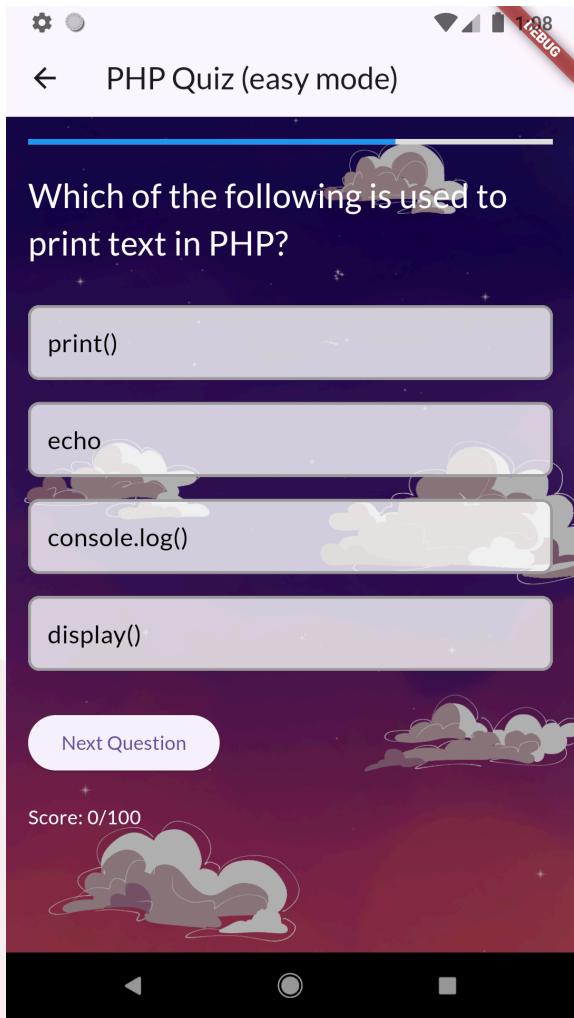
← CSS Quiz (hard mode)

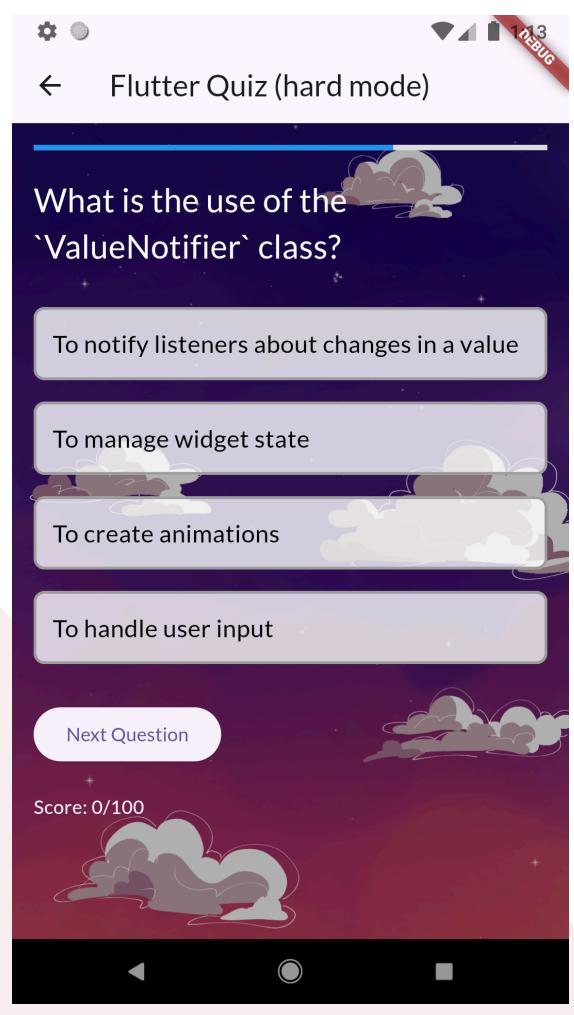
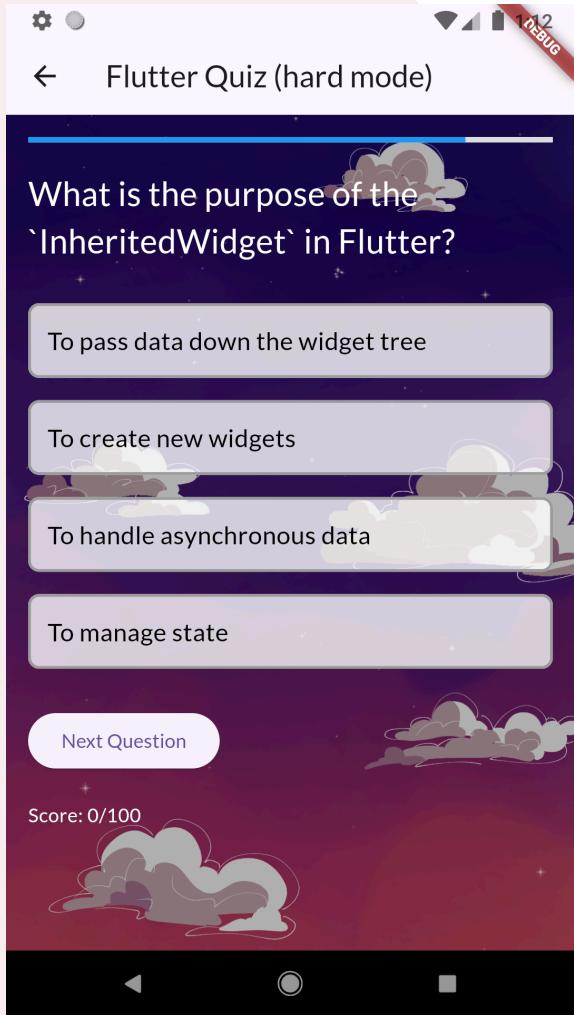
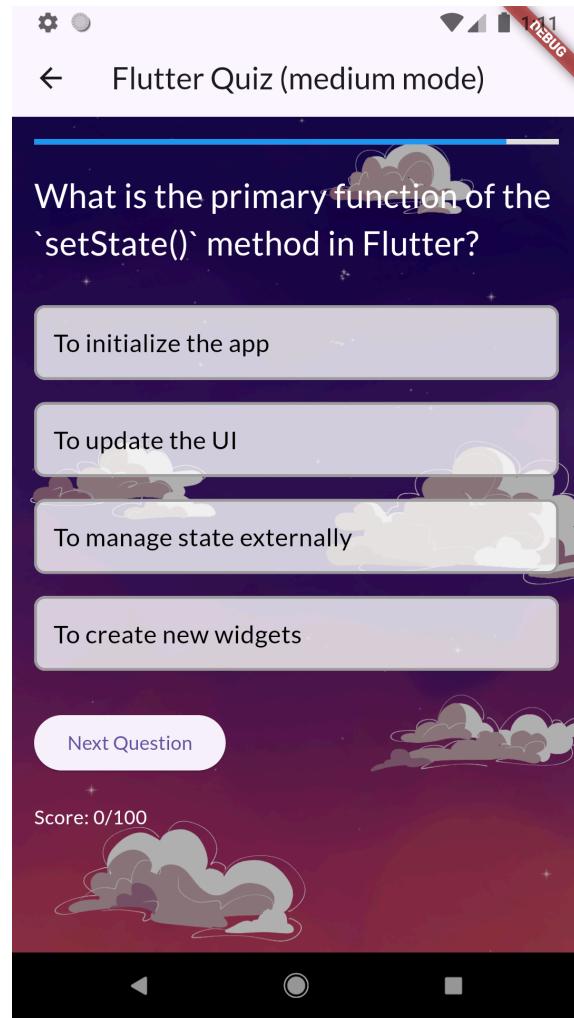
What is the CSS property to change the list item marker?

- list-style-type
- marker-type
- list-type
- item-style

Next Question

Score: 0/100





lib/screens/category_screen.dart

```
import 'package:flutter/material.dart';
import 'mode_screen.dart';

class CategoryScreen extends StatelessWidget {
  final List<Map<String, String>> categories = [
    {'name': 'HTML', 'description': 'Learn HTML basics.', 'image': 'assets/images/html.png'},
    {'name': 'CSS', 'description': 'Learn CSS styling.', 'image': 'assets/images/css.png'},
    {'name': 'Flutter', 'description': 'Learn Flutter framework.', 'image': 'assets/images/flutter.png'},
    {'name': 'C++', 'description': 'Learn C++ programming.', 'image': 'assets/images/cpp.png'},
    {'name': 'Java', 'description': 'Learn Java programming.', 'image': 'assets/images/java.png'},
    {'name': 'PHP', 'description': 'Learn PHP scripting.', 'image': 'assets/images/php.png'},
    {'name': 'Python', 'description': 'Learn Python language.', 'image': 'assets/images/python.png'},
    {'name': 'JavaScript', 'description': 'Learn JavaScript coding.', 'image': 'assets/images/javascript.png'},
  ];
}

@Override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text('Select a Category'),
    ),
    body: Stack(
      fit: StackFit.expand,
      children: [
        Image.asset(
          'assets/images/background.png',
          fit: BoxFit.cover,
        ),
        GridView.builder(
          padding: const EdgeInsets.all(8),
          gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(
            crossAxisCount: 2,
            crossAxisSpacing: 8,
            mainAxisSpacing: 8,
          ),
          itemCount: categories.length,
          itemBuilder: (context, index) {
            return GestureDetector(
              onTap: () {
                Navigator.push(
                  context,
                  MaterialPageRoute(builder: (context) => ModeScreen(category: categories[index]['name']!)),
                );
              },
            );
          },
        ),
      ],
    ),
  );
}
```

lib/screens/home_screen.dart

```
import 'package:flutter/material.dart';
import 'category_screen.dart';

class HomeScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: Stack(
        fit: StackFit.expand,
        children: [
          Image.asset(
            'assets/images/background.png',
            fit: BoxFit.cover,
          ),
          Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: [
              Image.asset(
                'assets/images/logo.png',
                height: 150,
              ),
              SizedBox(height: 20),
              Text(
                'QuizWhiz',
                style: TextStyle(
                  fontSize: 36,
                  fontWeight: FontWeight.bold,
                  color: Colors.white,
                ),
              ),
              SizedBox(height: 10),
              Text(
                'Play to Learn',
                style: TextStyle(
                  fontSize: 20,
                  color: Colors.white,
                ),
              ),
              SizedBox(height: 40),
              ElevatedButton(
                onPressed: () {
                  Navigator.push(
                    context,
                    MaterialPageRoute(builder: (context) => CategoryScreen()),
                  );
                },
                child: Text('Get Started'),
              ),
            ],
          ),
        ],
      );
    }
}
```

lib/main.dart

```
import 'package:flutter/material.dart';
import 'package:google_fonts/google_fonts.dart';
import 'screens/home_screen.dart';

void main() {
  runApp(QuizWhizApp());
}

class QuizWhizApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'QuizWhiz',
      theme: ThemeData(
        primarySwatch: Colors.blue,
        textTheme: GoogleFonts.latoTextTheme(), // Use GoogleFonts for
text theme
      ),
      home: HomeScreen(),
    );
  }
}
```

lib/screens/quiz_screen.dart

```
import 'dart:async';
import 'package:flutter/material.dart';
import 'package:quiz_whiz/models/question_model.dart';
import 'package:quiz_whiz/data/question_data.dart';
import 'score_screen.dart';

class QuizScreen extends StatefulWidget {
  final String category;
  final String mode;

  QuizScreen({required this.category, required this.mode});

  @override
  _QuizScreenState createState() => _QuizScreenState();
}

class _QuizScreenState extends State<QuizScreen> {
  late List<Question> questions;
  int currentQuestionIndex = 0;
  int score = 0;
  int selectedAnswerIndex = -1;
  bool isAnswerCorrect = false;
  late Timer _timer;
  int _remainingTime = 30;

  @override
  void initState() {
    super.initState();
    questions = questionsData[widget.category]!
      [widget.mode];
    _startTimer();
  }

  void _startTimer() {
    _remainingTime = 30;
    _timer = Timer.periodic(Duration(seconds: 1), (timer) {
      if (_remainingTime > 0) {
        setState(() {
          _remainingTime--;
        });
      } else {
        _timer.cancel();
        _handleTimeout();
      }
    });
  }

  void _handleTimeout() {
    setState(() {
      selectedAnswerIndex = -1;
      isAnswerCorrect = false;
    });
    Future.delayed(Duration(seconds: 1), nextQuestion);
  }

  void checkAnswer(int selectedIndex) {
    setState(() {
      selectedAnswerIndex = selectedIndex;
      if (selectedAnswerIndex ==
        questions[currentQuestionIndex].correctAnswerIndex) {
        isAnswerCorrect = true;
        score += 10;
      } else {
        isAnswerCorrect = false;
      }
    });
    _timer.cancel();
    Future.delayed(Duration(seconds: 1), nextQuestion);
  }
}
```

```
void nextQuestion() {
  if (currentQuestionIndex < questions.length - 1) {
    setState(() {
      currentQuestionIndex++;
      selectedAnswerIndex = -1;
      isAnswerCorrect = false;
      _startTimer();
    });
  } else {
    Navigator.pushReplacement(
      context,
      MaterialPageRoute(
        builder: (context) => ScoreScreen(
          score: score,
          category: widget.category,
          mode: widget.mode,
        ),
      ),
    );
  }
}

@Override
void dispose() {
  _timer.cancel();
  super.dispose();
}

@Override
Widget build(BuildContext context) {
  if (currentQuestionIndex >= questions.length) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Quiz Finished'),
      ),
      body: Center(
        child: Column(
          mainAxisAlignment: MainAxisAlignment.center,
          children: [
            Text(
              'Your Score: $score/100',
              style: TextStyle(fontSize: 24.0, color: Colors.white),
            ),
            ElevatedButton(
              onPressed: () {
                Navigator.pop(context);
              },
              child: Text('Back to Home'),
            ),
          ],
        ),
      ),
    );
  }
}
```

lib/screens/quiz_screen.dart

```
Question currentQuestion = questions[currentQuestionIndex];
return Scaffold(
  appBar: AppBar(
    title: Text('${widget.category} Quiz (${widget.mode} mode)'),
  ),
  body: Stack(
    fit: StackFit.expand,
    children: [
      ColorFiltered(
        colorFilter: ColorFilter.mode(
          Colors.black.withOpacity(0.3),
          BlendMode.darken,
        ),
        child: Image.asset(
          'assets/images/background.png',
          fit: BoxFit.cover,
        ),
      ),
      Padding(
        padding: const EdgeInsets.all(16.0),
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            LinearProgressIndicator(
              value: _remainingTime / 30.0,
              backgroundColor: Colors.grey[300],
              color: Colors.blue,
            ),
            SizedBox(height: 20.0),
            Text(
              currentQuestion.questionText,
              style: TextStyle(fontSize: 24.0, color: Colors.white),
            ),
            SizedBox(height: 20.0),
            ...currentQuestion.options.entries.map((entry) {
              int index = entry.key;
              String option = entry.value;

              Color borderColor;
              IconData? iconData;
              bool isCorrectAnswer = index ==
                currentQuestion.correctAnswerIndex;

              if (selectedAnswerIndex == index) {
                // User has selected this answer
                if (isAnswerCorrect) {
                  borderColor = Colors.green;
                  iconData = Icons.check;
                } else {
                  borderColor = Colors.red;
                  iconData = Icons.close;
                }
              } else if (isCorrectAnswer && selectedAnswerIndex
                != -1) {
                // Show correct answer after user has made a
                selection
                borderColor = Colors.green;
                iconData = Icons.check;
              } else {
                borderColor = Colors.grey;
                iconData = null;
              }
              return GestureDetector(
                onTap: () {
                  if (selectedAnswerIndex == -1) { // Allow only one selection
                    checkAnswer(index);
                  }
                },
                child: Container(
                  margin: EdgeInsets.symmetric(vertical: 8.0),
                  padding: EdgeInsets.all(12.0),
                  decoration: BoxDecoration(
                    border: Border.all(color: borderColor, width: 2.0),
                    borderRadius: BorderRadius.circular(8.0),
                    color: Colors.white.withOpacity(0.8),
                  ),
                  child: Row(
                    mainAxisAlignment: MainAxisAlignment.spaceBetween,
                    children: [
                      Expanded(
                        child: Text(
                          option,
                          style: TextStyle(fontSize: 18.0, color: Colors.black),
                        ),
                      ),
                      if (iconData != null)
                        Icon(
                          iconData,
                          color: borderColor,
                        ),
                    ],
                  ),
                );
              });
            }).toList(),
            SizedBox(height: 20.0),
            ElevatedButton(
              onPressed: nextQuestion,
              child: Text('Next Question'),
            ),
            SizedBox(height: 20.0),
            Text('Score: $score/100', style: TextStyle(color: Colors.white)),
          ],
        ),
      ),
    ],
  );
}
```

lib/screens/mode_screen.dart

```
import 'package:flutter/material.dart';
import 'quiz_screen.dart';

class ModeScreen extends StatelessWidget {
  final String category;

  ModeScreen({required this.category});

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text("$category Quiz - Select Mode"),
        backgroundColor: Colors.white,
      ),
      body: Stack(
        fit: StackFit.expand,
        children: [
          Image.asset(
            'assets/images/background.png',
            fit: BoxFit.cover,
          ),
          Padding(
            padding: const EdgeInsets.all(16.0),
            child: Column(
              mainAxisAlignment: MainAxisAlignment.center,
              children: [
                _buildModeCard(
                  context,
                  'Easy',
                  Icons.grade,
                  Colors.white!,
                  Colors.indigo,
                  'easy',
                ),
                SizedBox(height: 16.0),
                _buildModeCard(
                  context,
                  'Medium',
                  Icons.star_half,
                  Colors.white!,
                  Colors.indigo,
                  'medium',
                ),
                SizedBox(height: 16.0),
                _buildModeCard(
                  context,
                  'Hard',
                  Icons.star,
                  Colors.white!,
                  Colors.indigo,
                  'hard',
                ),
              ],
            ),
          );
        ];
      );
    );
  }
}
```

```
Widget _buildModeCard(
  BuildContext context,
  String mode,
  IconData icon,
  Color cardColor,
  Color iconColor,
  String modeValue,
) {
  return Card(
    elevation: 5,
    child: ListTile(
      contentPadding: EdgeInsets.all(16.0),
      leading: CircleAvatar(
        backgroundColor: iconColor,
        child: Icon(icon, color: Colors.white),
      ),
      title: Text(
        mode,
        style: TextStyle(fontSize: 20.0, fontWeight: FontWeight.bold),
      ),
      tileColor: cardColor,
      shape: RoundedRectangleBorder(
        borderRadius: BorderRadius.circular(10.0),
      ),
      onTap: () {
        Navigator.push(
          context,
          MaterialPageRoute(
            builder: (context) => QuizScreen(
              category: category,
              mode: modeValue,
            ),
          ),
        );
      },
    );
}
```

lib/screens/score_screen.dart

```
import 'package:flutter/material.dart';
import 'home_screen.dart';
import 'quiz_screen.dart';

class ScoreScreen extends StatelessWidget {
  final int score;
  final String category;
  final String mode;

  ScoreScreen({
    required this.score,
    required this.category,
    required this.mode,
  });

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Your Score'),
      ),
      body: Stack(
        fit: StackFit.expand,
        children: [
          ColorFiltered(
            colorFilter: ColorFilter.mode(
              Colors.black.withOpacity(0.3),
              BlendMode.darken,
            ),
            child: Image.asset(
              'assets/images/background.png',
              fit: BoxFit.cover,
            ),
          ),
          Center(
            child: Column(
              mainAxisAlignment: MainAxisAlignment.center,
              children: [
                Text(
                  'Your Score: $score/100',
                  style: TextStyle(
                    fontSize: 36,
                    fontWeight: FontWeight.bold,
                    color: Colors.white, // Change text color to white
                  ),
                ),
                SizedBox(height: 20),
                Text(
                  score >= 50 ? 'You\'re a quiz whiz!' : 'Keep learning!',
                  style: TextStyle(
                    fontSize: 24,
                    color: Colors.white, // Change text color to white
                  ),
                ),
              ],
            ),
          ),
        ],
      ),
      floatingActionButton: FloatingActionButton(
        onPressed: () {
          Navigator.pushReplacement(
            context,
            MaterialPageRoute(
              builder: (context) => HomeScreen(),
            ),
          );
        },
        child: Text('Back to Home'),
      ),
      floatingActionButtonAnimator: FloatingActionButtonAnimator.scaling,
    );
  }
}
```