

## MAD Assignment 4: Flutter App with Firestore Integration

```
import 'package:flutter/material.dart';
import 'package:firebase_core/firebase_core.dart';
import 'package:cloud_firestore/cloud_firestore.dart';

void main() async {
  WidgetsFlutterBinding.ensureInitialized();
  await Firebase.initializeApp();
  runApp(StudentApp());
}

class StudentApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Student Data App',
      home: StudentFormPage(),
    );
  }
}

class StudentFormPage extends StatefulWidget {
  @override
  _StudentFormPageState createState() => _StudentFormPageState();
}

class _StudentFormPageState extends State<StudentFormPage> {
  final TextEditingController _nameController = TextEditingController();
  final TextEditingController _ageController = TextEditingController();
  final TextEditingController _courseController = TextEditingController();

  Map<String, dynamic>? _latestStudent;

  Future<void> _submitData() async {
    final name = _nameController.text;
    final age = int.tryParse(_ageController.text);
    final course = _courseController.text;

    if (name.isEmpty || age == null || course.isEmpty) {
      ScaffoldMessenger.of(context).showSnackBar(SnackBar(
        content: Text("Please fill in all fields correctly."),
      ));
      return;
    }

    final newStudent = {
      'name': name,
      'age': age,
      'course': course,
      'timestamp': FieldValue.serverTimestamp(),
    };
  }
}
```

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};

await FirebaseFirestore.instance.collection('students').add(newStudent);

setState(() {
  _latestStudent = newStudent;
});

_nameController.clear();
_ageController.clear();
_courseController.clear();
}

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(title: Text('Add Student Data')),
    body: Padding(
      padding: const EdgeInsets.all(16.0),
      child: Column(
        children: [
          TextField(
            controller: _nameController,
            decoration: InputDecoration(labelText: 'Full Name'),
          ),
          TextField(
            controller: _ageController,
            decoration: InputDecoration(labelText: 'Age'),
            keyboardType: TextInputType.number,
          ),
          TextField(
            controller: _courseController,
            decoration: InputDecoration(labelText: 'Course'),
          ),
          SizedBox(height: 10),
          ElevatedButton(
            onPressed: _submitData,
            child: Text('Submit'),
          ),
          SizedBox(height: 20),
          if (_latestStudent != null) ...[
            Text(
              'Latest Student Added:',
              style: TextStyle(fontWeight: FontWeight.bold),
            ),
            Text('Name: \${_latestStudent!['name']}'),
            Text('Age: \${_latestStudent!['age']}'),
            Text('Course: \${_latestStudent!['course']}'),
          ],
          SizedBox(height: 20),
          Text(
            'All Students:',
            style: TextStyle(fontSize: 16, fontWeight: FontWeight.bold),

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    ),
    Expanded(
        child: StreamBuilder<QuerySnapshot>(
            stream: FirebaseFirestore.instance
                .collection('students')
                .orderBy('timestamp', descending: true)
                .snapshots(),
            builder: (context, snapshot) {
                if (!snapshot.hasData) return CircularProgressIndicator();
                final students = snapshot.data!.docs;
                return ListView.builder(
                    itemCount: students.length,
                    itemBuilder: (context, index) {
                        final data = students[index].data() as Map<String, dynamic>;
                        return ListTile(
                            title: Text(data['name']),
                            subtitle: Text('Age: \${data['age']}, Course: \${data['course']}'),
                        );
                    },
                );
            },
        ),
    ),
    ],
),
);
}
}

```