

PROJECT REPORT

ON

InterviewAgent

Submitted in partial fulfillment of the requirements for the degree of

Master of Computer Applications (MCA)

Submitted By:

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1. Introduction

1.1 Project Description

InterviewAgent is a state-of-the-art AI-powered platform...

The platform is designed to help students and professionals...

Key features include...

Project Description (Cont.)

Detailed Feature Breakdown:

- AI Interviewer: Real-time voice/chat interaction.
- Coding Arena: Integrated IDE with test cases.
- Dashboard: Analytics and progress tracking.

1.2 Company Profile

Developed as an academic project at [College Name].

2. Literature Survey

2.1 Existing And Proposed System

Existing Systems: LeetCode, HackerRank...

Proposed System: InterviewAgent...

2.2 Feasibility Study

Technical Feasibility...

2.3 Tools And Technologies Used

Backend Dependencies (requirements.txt):

```
fastapi
uvicorn
sqlalchemy
pydantic
pydantic-settings
python-jose[cryptography]
passlib[bcrypt]
bcrypt==4.0.1
python-multipart
openai
python-dotenv
asyncpg
psycpg2-binary
email-validator
```

Frontend Dependencies (package.json):

```
{
  "name": "frontend",
  "version": "0.1.0",
  "private": true,
  "scripts": {
    "dev": "next dev",
    "build": "next build",
    "start": "next start",
    "lint": "eslint"
  },
  "dependencies": {
    "@monaco-editor/react": "^4.7.0",
    "@radix-ui/react-avatar": "^1.1.11",
    "@radix-ui/react-dropdown-menu": "^2.1.16",
    "@radix-ui/react-label": "^2.1.8",
    "@radix-ui/react-radio-group": "^1.3.8",
    "@radix-ui/react-select": "^2.2.6",
    "@radix-ui/react-switch": "^1.2.6",
    "@radix-ui/react-tabs": "^1.1.13",
    "axios": "^1.13.2",
    "chart.js": "^4.5.1",
    "class-variance-authority": "^0.7.1",
    "clsx": "^2.1.1",
    "framer-motion": "^12.23.25",
    "lucide-react": "^0.555.0",
    "next": "16.0.7",
    "react": "19.2.0",
    "react-chartjs-2": "^5.3.1",
    "react-dom": "19.2.0",
    "tailwind-merge": "^3.4.0"
  },
  "devDependencies": {
    "@tailwindcss/postcss": "^4",
    "@types/node": "^20",
    "@types/react": "^19",
    "@types/react-dom": "^19",
    "eslint": "^9",
    "eslint-config-next": "16.0.7",
    "tailwindcss": "^4",
    "typescript": "^5"
  }
}
```

2.4 Hardware And Software Requirements

Hardware: i5/i7, 16GB RAM...

3. Software Requirements Specification

3.1 Users

User Class 1: Candidate...

User Class 2: Administrator...

3.2 Functional Requirements

FR1: Authentication...

3.3 Non-functional Requirements

NFR1: Performance...

4. System Design

4.1 System Perspective

Client-Server Architecture...

4.2 Context Diagram

[Context Diagram Placeholder]

5. Detailed Design

5.1 Use Case Diagram 1

[Use Case Diagram Placeholder]

5.1 Use Case Diagram 2

[Use Case Diagram Placeholder]

5.1 Use Case Diagram 3

[Use Case Diagram Placeholder]

5.1 Use Case Diagram 4

[Use Case Diagram Placeholder]

5.2 Sequence Diagram 1

[Sequence Diagram Placeholder]

5.2 Sequence Diagram 2

[Sequence Diagram Placeholder]

5.2 Sequence Diagram 3

[Sequence Diagram Placeholder]

5.2 Sequence Diagram 4

[Sequence Diagram Placeholder]

5.3 Collaboration Diagram 1

[Collaboration Diagram Placeholder]

5.3 Collaboration Diagram 2

[Collaboration Diagram Placeholder]

5.3 Collaboration Diagram 3

[Collaboration Diagram Placeholder]

5.4 Activity Diagram 1

[Activity Diagram Placeholder]

5.4 Activity Diagram 2

[Activity Diagram Placeholder]

5.4 Activity Diagram 3

[Activity Diagram Placeholder]

5.4 Activity Diagram 4

[Activity Diagram Placeholder]

5.5 Database Design

User Model:

```
from sqlalchemy import Boolean, Column, Integer, String
from app.db.base_class import Base

class User(Base):
    id = Column(Integer, primary_key=True, index=True)
    email = Column(String, unique=True, index=True, nullable=False)
    hashed_password = Column(String, nullable=False)
    full_name = Column(String, index=True)
    is_active = Column(Boolean(), default=True)
    is_superuser = Column(Boolean(), default=False)
```

Coding Model:

```
from sqlalchemy import Column, Integer, String, ForeignKey, DateTime, Text
from sqlalchemy.orm import relationship
from datetime import datetime
from app.db.base_class import Base

class CodingProblem(Base):
    id = Column(Integer, primary_key=True, index=True)
    title = Column(String, index=True)
    description = Column(Text, nullable=False)
    difficulty = Column(String) # Easy, Medium, Hard
    test_cases = Column(Text) # JSON string of test cases

class CodingSubmission(Base):
    id = Column(Integer, primary_key=True, index=True)
    user_id = Column(Integer, ForeignKey("user.id"))
    problem_id = Column(Integer, ForeignKey("codingproblem.id"))
    code = Column(Text, nullable=False)
    language = Column(String, default="python")
    status = Column(String) # Passed, Failed
    timestamp = Column(DateTime, default=datetime.utcnow)
```

Assessment Model (Snippet):

[Assessment Model Schema Placeholder]

6. Implementation

6.1 Screenshot 1

[Screenshot 1 Placeholder]

Figure 6.1: Description of Screenshot 1

6.1 Screenshot 2

[Screenshot 2 Placeholder]

Figure 6.2: Description of Screenshot 2

6.1 Screenshot 3

[Screenshot 3 Placeholder]

Figure 6.3: Description of Screenshot 3

6.1 Screenshot 4

[Screenshot 4 Placeholder]

Figure 6.4: Description of Screenshot 4

6.1 Screenshot 5

[Screenshot 5 Placeholder]

Figure 6.5: Description of Screenshot 5

6.1 Screenshot 6

[Screenshot 6 Placeholder]

Figure 6.6: Description of Screenshot 6

6.1 Screenshot 7

[Screenshot 7 Placeholder]

Figure 6.7: Description of Screenshot 7

6.1 Screenshot 8

[Screenshot 8 Placeholder]

Figure 6.8: Description of Screenshot 8

6.1 Screenshot 9

[Screenshot 9 Placeholder]

Figure 6.9: Description of Screenshot 9

6.1 Screenshot 10

[Screenshot 10 Placeholder]

Figure 6.10: Description of Screenshot 10

6.1 Screenshot 11

[Screenshot 11 Placeholder]

Figure 6.11: Description of Screenshot 11

6.1 Screenshot 12

[Screenshot 12 Placeholder]

Figure 6.12: Description of Screenshot 12

6.1 Screenshot 13

[Screenshot 13 Placeholder]

Figure 6.13: Description of Screenshot 13

6.1 Screenshot 14

[Screenshot 14 Placeholder]

Figure 6.14: Description of Screenshot 14

6.1 Screenshot 15

[Screenshot 15 Placeholder]

Figure 6.15: Description of Screenshot 15

7. Software Testing

Test Case Suite 1

Test Case ID | Description | Expected | Actual | Status

TC001 | Test Feature 1 | Success | Success | Pass

Test Case Suite 2

Test Case ID | Description | Expected | Actual | Status

TC002 | Test Feature 2 | Success | Success | Pass

Test Case Suite 3

Test Case ID | Description | Expected | Actual | Status

TC003 | Test Feature 3 | Success | Success | Pass

Test Case Suite 4

Test Case ID | Description | Expected | Actual | Status

TC004 | Test Feature 4 | Success | Success | Pass

Test Case Suite 5

Test Case ID | Description | Expected | Actual | Status

TC005 | Test Feature 5 | Success | Success | Pass

Test Case Suite 6

Test Case ID | Description | Expected | Actual | Status

TC006 | Test Feature 6 | Success | Success | Pass

8. Conclusion

The InterviewAgent project has successfully achieved...

9. Future Enhancements

Future work includes...

Appendix A: Bibliography

References...

Appendix B: User Manual

User Manual Page 1...

