**Users Collection - Finalized Attributes**

{

"\_id": "ObjectId (Primary Key)",

"name": "String",

"email": "String (Unique, acts as login ID)",

"password": "String (Hashed)",

"type": "String (Enum: 'student', 'teacher', 'admin')",

"gender": "String (Enum: 'male', 'female', 'other')",

"created\_at": "ISODate (Timestamp when the user was created)",

"updated\_at": "ISODate (Timestamp when the user last updated their details)"

}

**Students Collection - Finalized Attributes**

{

"\_id": "ObjectId (Primary Key - )",

"user\_id": "ObjectId (Reference to Users.\_id)",

"grade": "Integer (Student's grade level)",

"school": "String (School name, optional)",

"created\_at": "ISODate (Timestamp when student record was created)",

"updated\_at": "ISODate (Timestamp when student record was last updated)"

}

**Questions Collection - Schema & Explanations**

{

"\_id": "ObjectId (Auto-generated MongoDB ID)",

"description": "String (Text of the question)",

"type": "String (Enum: 'SCQ', 'MCQ')",

"options": [

{

"option\_id": "Integer (Unique within the question)",

"text": "String (Option text)",

"is\_correct": "Boolean (true if correct, false otherwise)"

}

],

"solution": "String (Detailed explanation of the solution)",

"difficulty": "String (Enum: 'VERY\_EASY', 'EASY', 'MEDIUM', 'HARD', 'VERY\_HARD', 'UNMARKED')",

"topic": "String (Main topic of the question, optional)",

"sub\_topic": "String (Specific section under the topic)",

"prerequisites": "Array of Strings (topics to know upfront to solve the current question)",

"topic\_id": "String (Unique identifier for the topic, used for categorization)"

}

**StudentProgress Collection - Schema & Explanations**

{

"\_id": "ObjectId",

"student\_id": "ObjectId (Reference to Students.\_id)",

"sub\_topic": "String (The sub-topic assigned to the student)",

"difficulty": "String (Starting difficulty: 'Easy', 'Medium', 'Hard')",

"assigned\_timestamp": "ISODate (When the sub-topic was assigned)",

"start\_timestamp": "ISODate (When student started working on it, null if not started yet)",

"end\_timestamp": "ISODate (Only when the sub-topic is completed)",

"answers": [

{

"question\_id": "ObjectId (Reference to Questions.\_id)",

"selected\_answer": "String (A/B/C/D or 'SKIPPED')",

"submission\_timestamp": "ISODate",

"correct": "Boolean (true if correct, false otherwise)"

}

]}