API Name

Dynamic Bidder Profile API

1. MongoDB Database Format

Two main collections are required: users to store bidder data and questions to define the dynamic question tree.

a) users Collection

This collection stores the bidder's profile information. The profile_data field is a flexible key-value store, allowing for dynamic fields based on the questions answered.

JSON

```
{
 "_id": "$ObjectId('...')",
 "auth_user_id": "$String (links to your authentication system)",
 "email": "$String",
 "profile_status": "$String ('INCOMPLETE', 'PENDING_VERIFICATION', 'COMPLETE')",
 "bidder_type": "$String (e.g., 'INDIVIDUAL_FREELANCER', 'COMPANY', 'GOVT_AGENCY')", // Key field for initial branching
 "profile_data": {
  "full_name": "Jane Doe",
  "experience_years": 5,
  "primary_industry": "SOFTWARE_DEVELOPMENT",
  "company_name": "Innovate Inc.",
  "company_registration_id": "U74999DL2025PTC123456",
  "portfolio_links": [
   "https://github.com/janedoe",
   "https://behance.net/janedoe"
  ],
  // ... more dynamic fields will be added here as the user answers
 },
 "createdAt": "$ISODate",
 "updatedAt": "$ISODate",
"profile_embedding": "[....]"
}
```

b) questions Collection

This collection is the core of the system. It stores each question and the logic for what question comes next, forming the tree.

JSON

```
{
 "_id": "$String (A unique, human-readable ID for the question, e.g., 'bidder_type')",
 "text": "$String (The question presented to the user, e.g., 'What type of bidder are you?')",
 "help_text": "$String (Optional: Guidance for the user, e.g., 'Select Company if you are a registered business entity.')",
 "input_type": "$String ('TEXT', 'NUMBER', 'EMAIL', 'SELECT', 'MULTI_SELECT', 'FILE_UPLOAD', 'DATE')",
 "is_initial": "$Boolean (true if this is one of the first questions to ask)",
 "validation_rules": {
  "is_required": "$Boolean",
  "min_length": "$Number",
  "max_length": "$Number",
  "regex": "$String (e.g., for email or phone number validation)"
 },
 "options": [ // Only for 'SELECT' or 'MULTI_SELECT' input_type
  {
   "label": "Individual / Freelancer",
   "value": "INDIVIDUAL_FREELANCER"
  },
  {
   "label": "Registered Company",
   "value": "COMPANY"
  }
 ],
 "next_question_logic": [ // The core of the tree structure
  {
   "condition": { // If the user's answer to THIS question meets this condition...
    "operator": "$String ('EQUALS', 'GREATER_THAN', 'CONTAINS')",
    "value": "$Mixed (The value to check against, e.g., 'COMPANY')"
   },
   "next_question_ids": ["$String ('company_name', 'company_registration_id')"] // ...ask these question(s) next.
  },
  {
   "condition": {
    "operator": "EQUALS",
    "value": "INDIVIDUAL_FREELANCER"
   },
   "next_question_ids": ["$String ('full_name', 'experience_years')"]
  }
 ],
 "default_next_question_id": "$String (Optional: Fallback question if no condition matches)"
}
```

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2. Process of GET and POST through API

This process involves a cycle of GETting a question and POSTing an answer, which in turn determines the next question.

API Endpoint 1: Get Next Question(s)

This API fetches the current set of questions the user needs to answer.

- **API Name:** `GET /api/v1/profile/questions`
- **Method:** `GET`
- **Auth:** Required (to identify the user).

Process:

1. The API receives the request with the user's authentication token.
2. It queries the `users` collection to check the user's `profile_data`.
3. **If `profile_data` is empty:** It queries the `questions` collection for all documents where `is_initial: true` and returns them.
4. **If `profile_data` is not empty:** It identifies the last question(s) answered. It uses the `_id` of the last answered question to find the corresponding document in the `questions` collection. It then evaluates the `next_question_logic` against the user's saved answer to determine the ID(s) of the next question(s).
5. It fetches the full question object(s) for the determined ID(s) and returns them.
6. If no `next_question_id` is found (end of a branch), it returns an empty array and may suggest updating the user's `profile_status` to `COMPLETE`.

Output Format (Success 200 OK):

JSON

```json
{
  "status": "success",
  "data": {
    "questions": [
      {
        "question_id": "primary_industry",
        "text": "What is your primary industry of operation?",
        "help_text": "Select the category that best represents your core business.",
        "input_type": "SELECT",
        "validation_rules": {
          "is_required": true
        },
        "options": [
          { "label": "Software Development", "value": "SOFTWARE_DEVELOPMENT" },
          { "label": "Construction", "value": "CONSTRUCTION" },
          { "label": "Marketing & Advertising", "value": "MARKETING" }
        ]
      }
      // ... more questions can be sent in the same batch
    ]
  }
}
```

API Endpoint 2: Submit Answer(s)

This API saves the user's answers and can optionally return the next set of questions to optimize the flow.

- **API Name:** `POST /api/v1/profile/answers`
- **Method:** `POST`
- **Auth:** Required.

Process:

1. The API receives an array of answers in the request body.
2. For each answer, it validates the `value` against the `validation_rules` from the corresponding document in the `questions` collection.
3. If validation fails, it returns a 400 Bad Request error with details.
4. If validation succeeds, it updates the user's document in the `users` collection, adding the new key-value pairs to the `profile_data` object using `$set`.
5. After successfully saving, it performs the same logic as the `GET /api/v1/profile/questions` endpoint to determine the next set of questions.
6. It returns a success message along with the next set of questions to save the client an additional API call.

Input Format (Request Body):

JSON

```
{
  "answers": [
    {
      "question_id": "bidder_type",
      "value": "COMPANY"
    }
  ]
}
```

Output Format (Success 201 Created):

JSON

```
{
  "status": "success",
  "message": "Answers saved successfully.",
  "data": {
    "next_questions": [ // This is the same structure as the GET endpoint's output
      {
        "question_id": "company_name",
        "text": "What is your registered company name?",
        "input_type": "TEXT",
        // ... other question fields
      },
      {
        "question_id": "company_registration_id",
        "text": "Please provide your Company Registration ID.",
        "input_type": "TEXT",
        // ... other question fields
      }
    ]
  }
}
```

Output Format (Error 400 Bad Request):

JSON

```
{
  "status": "error",
  "message": "Validation failed for one or more fields.",
  "errors": [
    {
      "question_id": "experience_years",
      "message": "Value must be a positive number."
    }
  ]
}
```

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3. Suggested Question Tree Structure

-> **`civil_bidder_role`**: "What is your primary role in construction projects?" (Type: `SELECT`)

- **Options**: `General Contractor`, `Subcontractor`, `Consultant`, `Material Supplier`

- ↳ **IF ANSWER is** **`General Contractor`**
  - **->** **`contractor_class`**: "What is your registered Contractor Class?" (Type: `SELECT`, relevant in India & other regions. Options: `Class I (Unlimited)`, `Class II (Up to X value)`, `Class III`, etc.)
  - **->** **`company_registration_docs`**: "Please upload your company registration certificate (e.g., Certificate of Incorporation)." (Type: `FILE_UPLOAD`)
  - **->** **`pf_esi_registration`**: "Are you registered under PF & ESI schemes?" (Type: `BOOLEAN`)
    - ↳ **IF ANSWER is** **`true`**
      - **->** **`pf_esi_docs`**: "Please upload your PF & ESI registration certificates." (Type: `FILE_UPLOAD`)
  - **->** **`avg_annual_turnover`**: "What is your average annual financial turnover for the last 3 years? (In INR Cr.)" (Type: `NUMBER`)
  - **->** **`largest_project_value`**: "What is the value of the single largest project you have completed to date? (In INR Cr.)" (Type: `NUMBER`)
  - **->** **`project_specialization`**: "Which types of projects do you specialize in?" (Type: `MULTI_SELECT`)
    - **Options**: `Buildings`, `Roads & Highways`, `Bridges & Flyovers`, `Water Supply & Drainage`, `Industrial Structures`, `Marine Structures`
    - ↳ **IF SELECTION CONTAINS** **`Buildings`**
      - **->** **`building_subtype`**: "Which type of building projects?" (Type: `MULTI_SELECT`. Options: `Residential Apartments`, `Commercial Offices`, `Hospitals`, `Educational Institutions`, `Villas`)
      - **->** **`rera_registration`**: "Do you have RERA registration for any of your projects?" (Type: `BOOLEAN`)
        - ↳ **IF ANSWER is** **`true`**
          - **->** **`rera_number`**: "Please provide your RERA registration number(s)." (Type: `TEXTAREA`)
    - ↳ **IF SELECTION CONTAINS** **`Roads & Highways`**
      - **->** **`road_experience`**: "What class of roads have you constructed?" (Type: `MULTI_SELECT`. Options: `National Highways (NH)`, `State Highways (SH)`, `Major District Roads (MDR)`, `Urban/City Roads`)

      - **->** **`road_machinery`**: "Do you own key road construction machinery (Paver, Roller, Grader)?" (Type: `BOOLEAN`)
    - ↳ **IF SELECTION CONTAINS** **`Bridges & Flyovers`**
      - **->** **`bridge_tech`**: "What bridge technologies are you experienced with?" (Type: `MULTI_SELECT`. Options: `RCC Girder`, `PSC Girder`, `Steel Truss`, `Precast Segmental`)
      - **->** **`max_span_length`**: "What is the maximum single span length of a bridge you have constructed (in meters)?" (Type: `NUMBER`)
  - **->** **`owned_equipment`**: "Please list key construction equipment you own." (Type: `TEXTAREA`)
  - **->** **`manpower_details`**: "Provide details of your technical manpower." (Type: `COMPLEX_OBJECT`. Fields: `Project Managers (No.)`, `Civil Engineers (No.)`, `Safety Officers (No.)`, `Skilled Labourers (Approx. No.)`)
  - **->** **`safety_policy_doc`**: "Please upload your company's Health, Safety & Environment (HSE) policy document." (Type: `FILE_UPLOAD`)
  - **->** **`quality_certifications`**: "Do you have any quality management certifications (e.g., ISO 9001)?" (Type: `BOOLEAN`)

- ↳ **IF ANSWER is** `Subcontractor`
  - **->** **`subcontractor_trade`**: "What is your area of specialization?" (Type: `SELECT`)
    - **Options**: `Excavation & Earthwork`, `Foundation & Piling`, `Structural (RCC & Steel)`, `MEP (Mechanical, Electrical, Plumbing)`, `Interior & Finishing Works`, `Facade & Glazing`
    - ↳ **IF ANSWER is** **`Foundation & Piling`**
      - **->** **`piling_methods`**: "Which piling methods do you specialize in?" (Type: `MULTI_SELECT`. Options: `Bored Pile`, `Driven Pile`, `Micropile`)
      - **->** **`piling_rig_details`**: "Please provide details of your piling rigs (Make, Model, Capacity)." (Type: `TEXTAREA`)
    - ↳ **IF ANSWER is** **`MEP (Mechanical, Electrical, Plumbing)`**
      - **->** **`electrical_license`**: "Do you hold a valid Electrical Contractor License?" (Type: `BOOLEAN`)
        - ↳ **IF ANSWER is** **`true`**
          - **->** **`electrical_license_doc`**: "Please upload your Electrical Contractor License." (Type: `FILE_UPLOAD`)
      - **->** **`hvac_experience`**: "Do you have experience with centralized HVAC systems?" (Type: `BOOLEAN`)
    - ↳ **IF ANSWER is** **`Interior & Finishing Works`**
      - **->** **`finishing_portfolio`**: "Please provide a link to your

portfolio or upload photos of completed interior projects." (Type: `FILE_UPLOAD` or `URL`)

  - **->** **`skilled_team_size`**: "What is the size of your specialized skilled team?" (Type: `NUMBER`)
  - **->** **`major_clients`**: "List the major General Contractors you have worked with." (Type: `TEXTAREA`)

- ↳ **IF ANSWER is** **`Consultant`**
  - **->** **`consultancy_type`**: "What type of consultancy services do you provide?" (Type: `SELECT`)
    - **Options**: `Architectural Design`, `Structural Design`, `Project Management Consultancy (PMC)`, `Quantity Surveying`, `Geotechnical & Surveying`
    - ↳ **IF ANSWER is** **`Architectural Design`**
      - **->** **`coa_registration`**: "Please provide your Council of Architecture (COA) registration number." (Type: `TEXT`)
      - **->** **`design_portfolio`**: "Please provide a link to your design portfolio (e.g., Behance) or upload a PDF." (Type: `URL` or `FILE_UPLOAD`)
    - ↳ **IF ANSWER is** **`Structural Design`**
      - **->** **`structural_eng_license`**: "Please upload your chartered/professional structural engineer certificate." (Type: `FILE_UPLOAD`)
      - **->** **`design_software`**: "Which structural design software are you proficient in?" (Type: `MULTI_SELECT`. Options: `STAAD.Pro`, `ETABS`, `SAFE`, `Tekla Structures`)
    - ↳ **IF ANSWER is** **`Project Management Consultancy (PMC)`**
      - **->** **`pmc_software`**: "Which project management software do you use?" (Type: `MULTI_SELECT`. Options: `Primavera P6`, `Microsoft Project`, `Aconex`)
      - **->** **`pmc_project_value`**: "What is the total value of projects you are currently managing? (In INR Cr.)" (Type: `NUMBER`)
  - **->** **`professional_indemnity_insurance`**: "Do you have Professional Indemnity Insurance?" (Type: `BOOLEAN`)
    - ↳ **IF ANSWER is** **`true`**
      - **->** **`pi_insurance_doc`**: "Please upload a copy of your insurance policy." (Type: `FILE_UPLOAD`)

- ↳ **IF ANSWER is** **`Material Supplier`**
  - **->** **`material_category`**: "Which category of materials do you supply?" (Type:

`SELECT`)

  - **Options**: `Cement & Concrete`, `Steel (TMT, Structural)`, `Aggregates (Sand, Gravel)`, `Bricks & Blocks`, `Plumbing & Electrical Fixtures`
  - ↳ **IF ANSWER is** **`Cement & Concrete`**
    - **->** **`concrete_plant_type`**: "Do you operate a Ready Mix Concrete (RMC) plant?" (Type: `BOOLEAN`)
      - ↳ **IF ANSWER is** **`true`**
        - **->** **`rmc_plant_capacity`**: "What is the capacity of your RMC plant (in cubic meters/hour)?" (Type: `NUMBER`)
        - **->** **`transit_mixer_count`**: "How many transit mixers do you own?" (Type: `NUMBER`)
    - **->** **`cement_brands`**: "Which brands of cement do you stock?" (Type: `MULTI_SELECT`. Options: `UltraTech`, `ACC`, `Ambuja`, `JSW`, `Dalmia`)
  - ↳ **IF ANSWER is** **`Steel (TMT, Structural)`**
    - **->** **`steel_auth_dealer`**: "Are you an authorized dealer for any steel brands?" (Type: `BOOLEAN`)
      - ↳ **IF ANSWER is** **`true`**
        - **->** **`steel_dealership_doc`**: "Please upload your dealership certificate." (Type: `FILE_UPLOAD`)
    - **->** **`mill_test_certificate`**: "Do you provide a Mill Test Certificate with every supply?" (Type: `BOOLEAN`)
- **->** **`supply_radius`**: "What is your maximum supply radius from your primary location (in km)?" (Type: `NUMBER`)
- **->** **`gst_certificate`**: "Please upload your GST registration certificate." (Type: `FILE_UPLOAD`)