

NatureMapping

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Usage Scenario

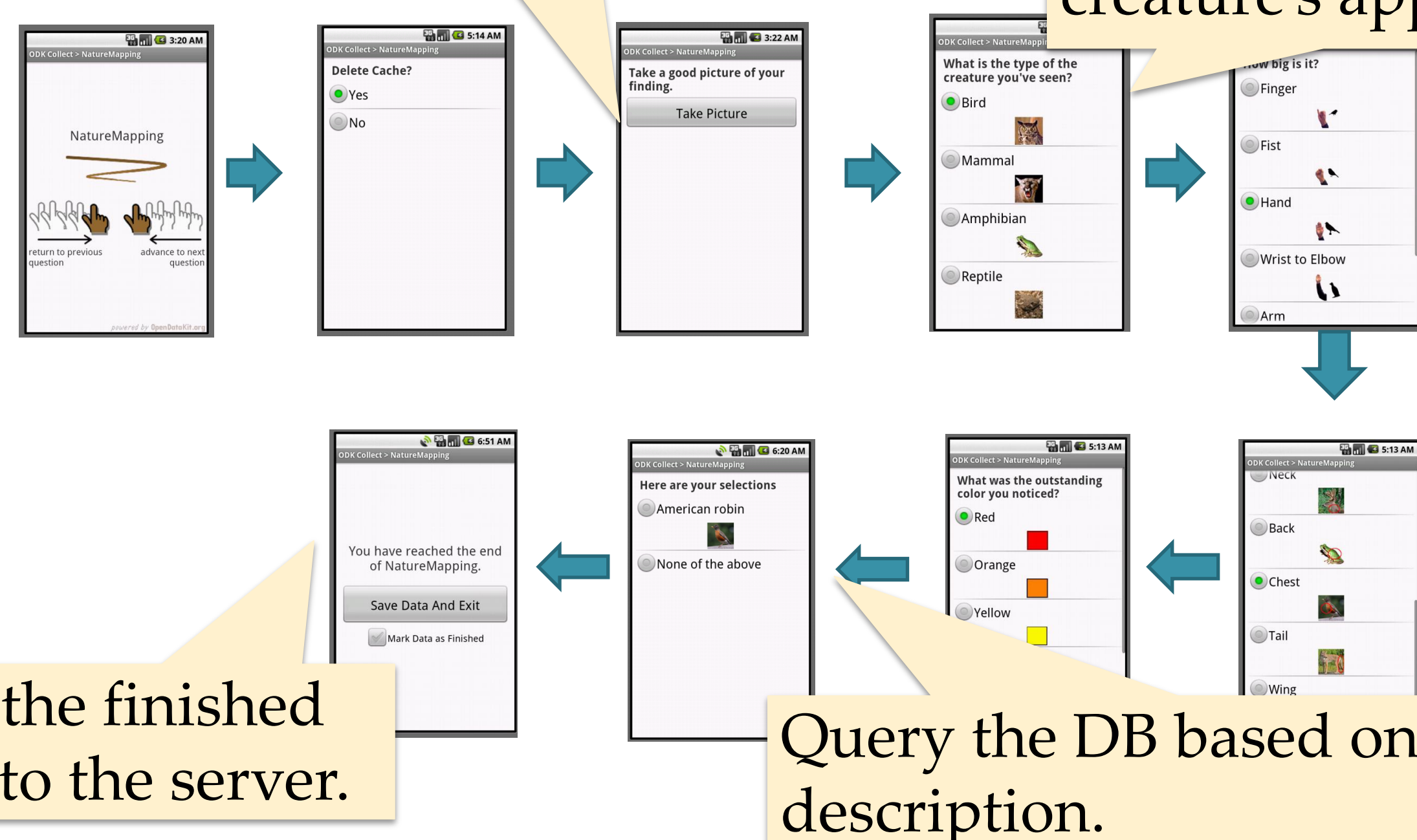
After locating a wildlife creature, user starts ODK and launches NM form.

Take a picture.

Answer a few questions about the creature's appearance.

Send the finished form to the server.

Query the DB based on user's description.



ODK (Open Data Kit)

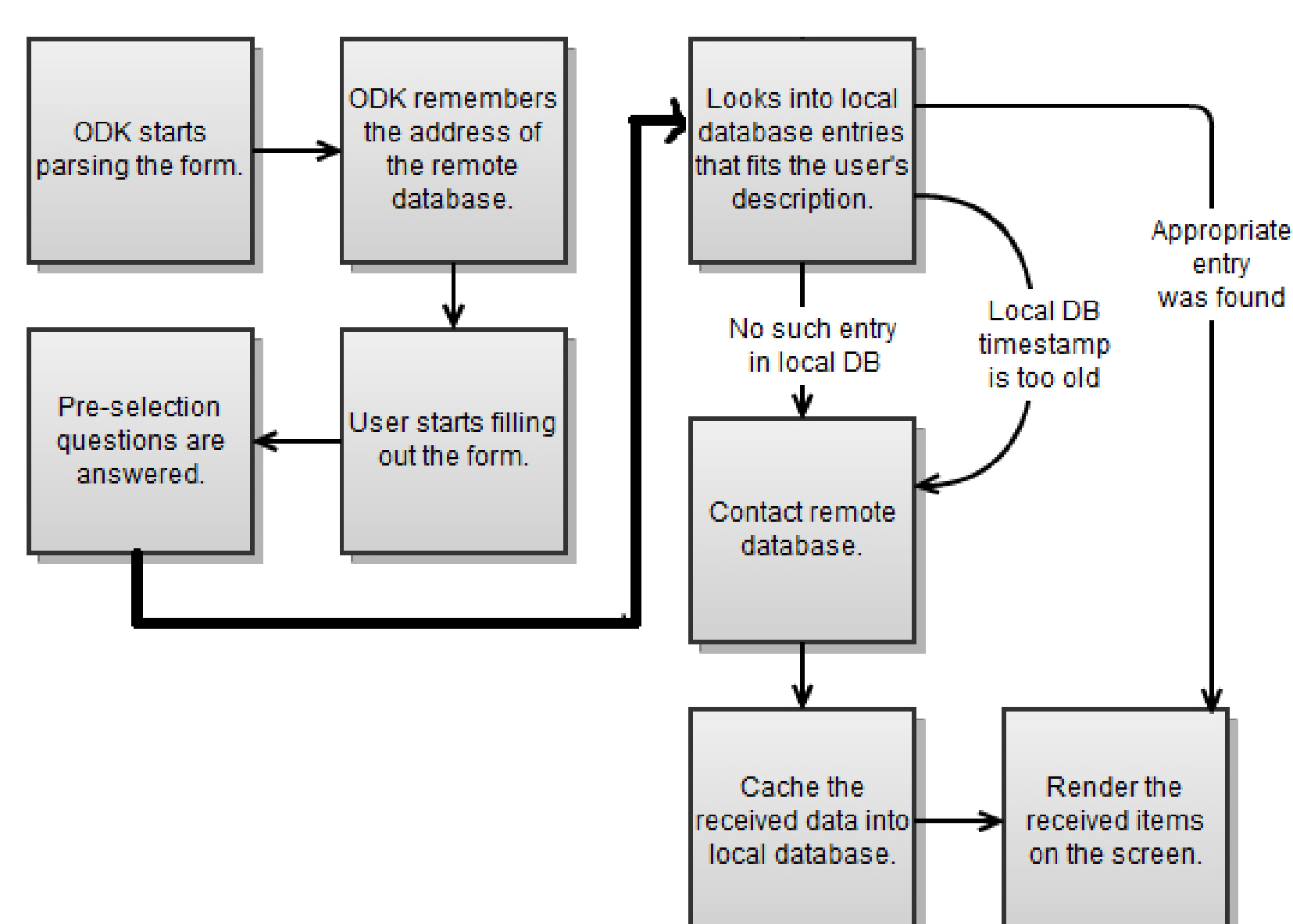
- User selects a form to fill in.
- ODK parses the form, and renders the question on the screen.
- User answers the rendered questions.
- Finished form is saved, ready to be submitted to a server.
- A very simple but effective data collection tool.

The Problem

- The form requires every data entry pre-defined within it in order to implement decision-tree based selection generation.
- This model WILL NOT SCALE as the database gets larger and larger.

Approach

- User-device interaction will remain the same.
- DB interaction / dynamic selection generation during rendering



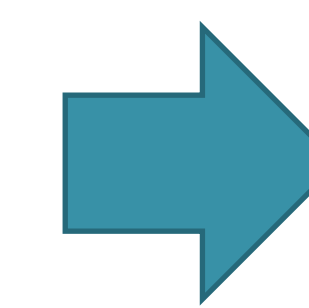
Implementation - ODK Collect

- ODK recognizes special question type and special attributes of this type, which indicates question instances to look back.
- When this special question type is encountered, ODK reads the answers to the specified questions.
- Based on these answers, queries the database to get appropriate entries, then display them on screen.
- Result: Separation of data entries from the form!

Implementation - Database

Pre-selection

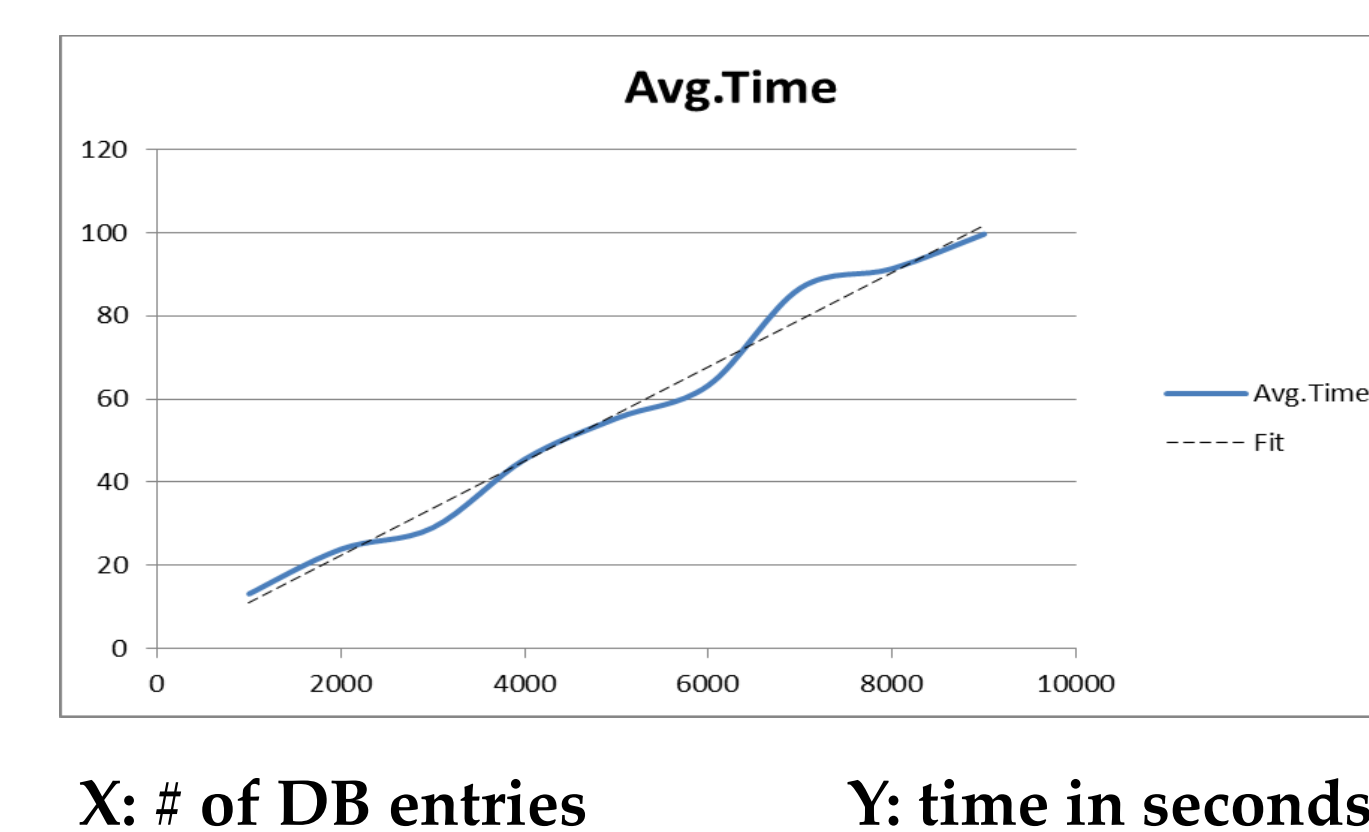
Result



- Results from previous questions are used for Database Queries.
- Caches database for future use.
- Cache renewed after timestamp or location-stamp expiration.

Database Performance

The relation between time it takes to update local database and the size of external database is linear.



Implementation – Form Structure

```
<select1 bind="PRQRRESULT" odk:species="/NatureMapping/PRQ01"
odk:size="/NatureMapping/PRQ02"
odk:color="/NatureMapping/PRQ03"
odk:color_position="/NatureMapping/PRQ04"
odk:address="192.168.1.3"
odk:cache="/NatureMapping/CACHE">
<label ref="jr:text('your_selection')"/>
<item>
<label ref="jr:text('okay')"/>
<value>okay</value>
</item>
<label ref="jr:text('not_found')"/>
<value>not_found</value>
</item>
</select1>
```

The new form allows us to embed attributes in select tag that can be used to:

- make query
- figure out the location of database
- check for cached entries.