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Architect’s Guide to Data Modeling

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the performance and fair value of our investments in complementary businesses through our strategic investment portfolio; the impact of future gains or losses from our strategic investment portfolio, including gains or losses from overall market conditions that may affect the publicly traded companies within our strategic investment portfolio; our ability to protect our intellectual property rights; our ability to maintain and enhance our brands; the impact of foreign currency exchange rate and interest rate fluctuations on our results; the valuation of our deferred tax assets and the release of related valuation allowances; the potential availability of additional tax assets in the future; the impact of new accounting pronouncements and tax laws; uncertainties affecting our ability to estimate our tax rate; uncertainties regarding our tax obligations in connection with potential jurisdictional transfers of intellectual property, including the tax rate, the timing of transfers and the value of such transferred intellectual property; 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and our ability to achieve our aspirations, goals and projections related to our environmental, social and governance initiatives, including our ability to comply with emerging corporate responsibility regulations.

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Introduction

Importance of Data Modeling

Important in real life and for those on your CTA journey!

Data Model is the foundation of your solution.

A bad data model will result in:

- Technical debt
- Missing out of box features
- Negative impact on other technical areas i.e. integrations, security, user experience
- Increased license & project cost
- Unhappy stakeholders!

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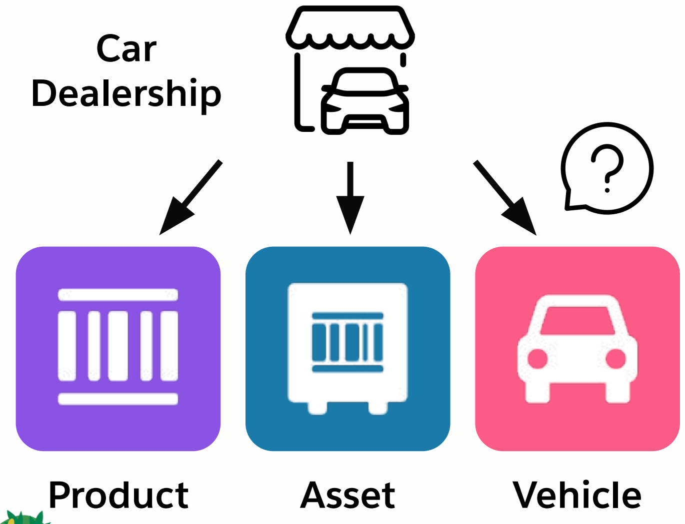
The Fundamentals

Types of Objects

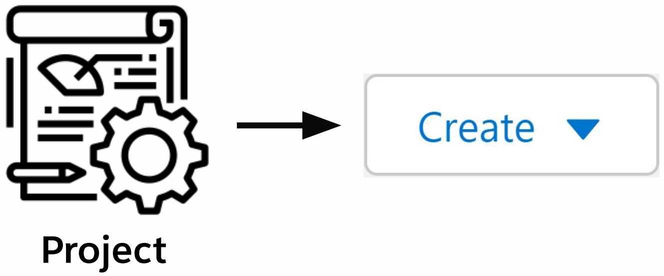
Standard Objects

Objects that are available out of the box in a standard Salesforce org.



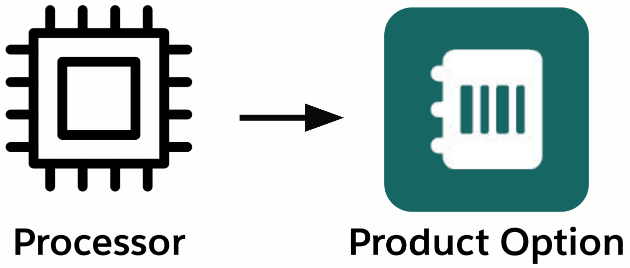
Custom Objects

Objects that are not available out of box and are created custom by the implementation team for your specific Salesforce org.



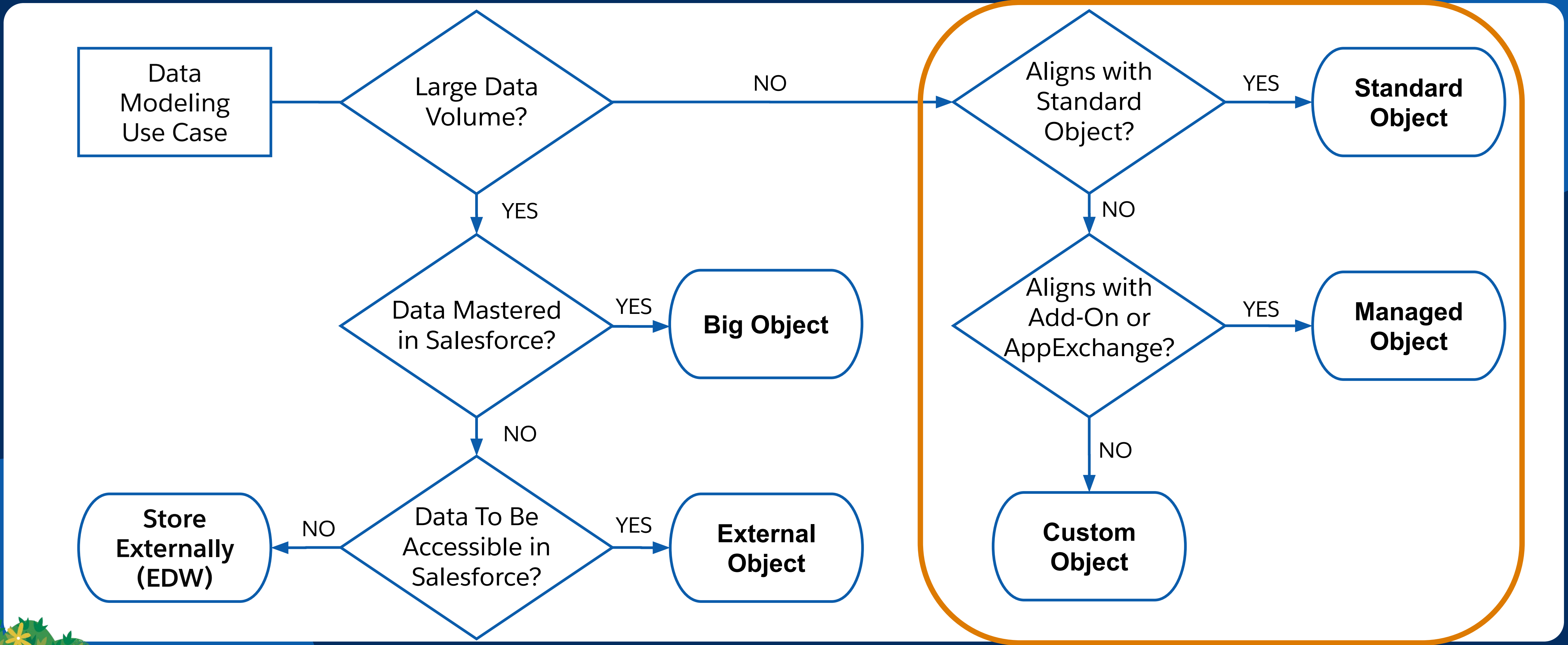
Managed Objects

Objects that are not available out of the box, but are included in a Salesforce Add-On or other Managed Package.



Reference: Object Reference

Decision Making



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Canonical Data Model

First-Party Standard Objects

Key First-Party Standard Objects

Leads

Potential customers aka prospects

Accounts

Entities we do business with (customers, partners)

Contacts

Individuals we do business with

Opportunities

Sales deals that generate revenue

Cases

Customer support issue, enquiry, or feedback

Customer Journey

Marketing

- Campaigns
- Leads

Sales

- Accounts
- Contacts
- Opportunities
- Quotes
- Contracts

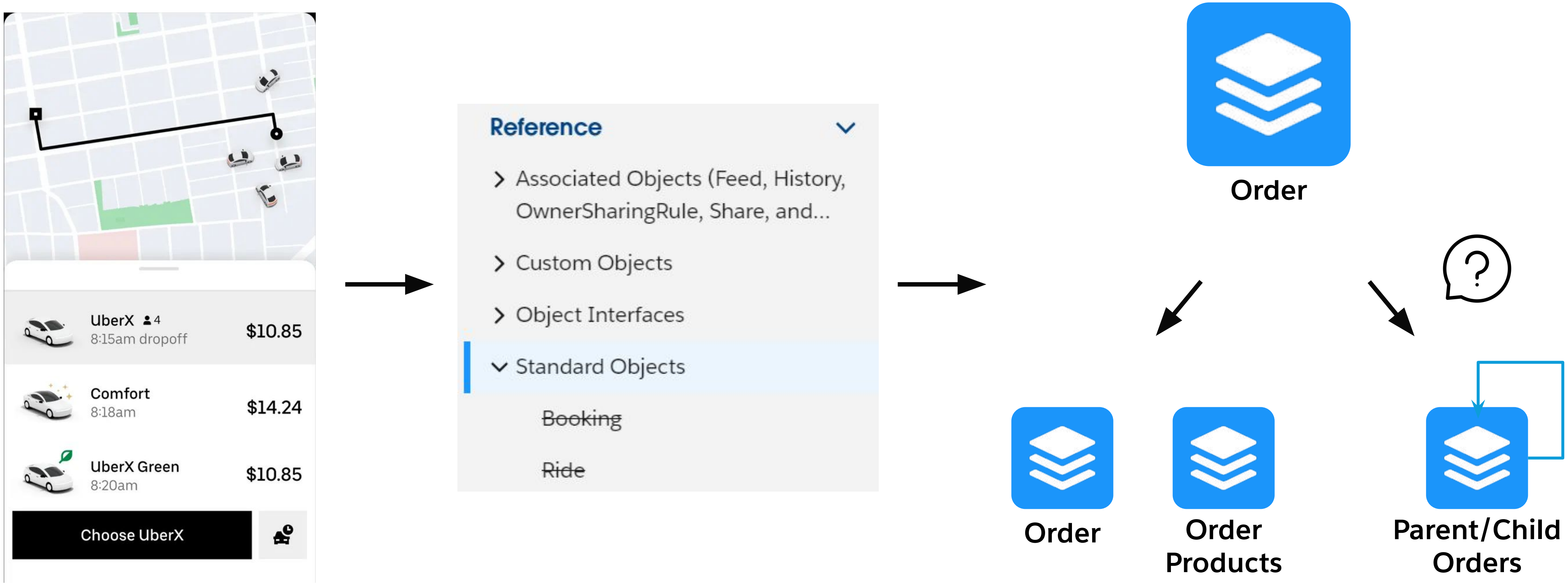
Fulfillment

- Orders
- Assets

Service

- Cases
- Work Orders
- Service Appointments
- Service Contracts

Example


UberX 4
8:15am dropoff
$10.85
Comfort
8:18am
$14.24
UberX Green
8:20am
$10.85
Choose UberX
Reference
Associated Objects (Feed, History, OwnerSharingRule, Share, and...
Custom Objects
Object Interfaces
Standard Objects
~~Booking~~
~~Ride~~
Order
Order
Order Products
Parent/Child Orders

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Custom Objects

Considerations & Solution Patterns

Custom 🤔 💭 ?

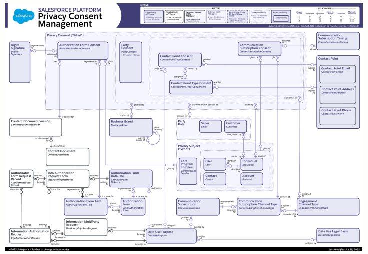
With great power comes great responsibility, Use wisely

Reinvent the wheel?

- **Ensure** there isn't a **Standard** Object that **fits** your use case.
- **Lose** OOTB capability by deciding on a Custom object **over** a potential Standard object.
- **Lead Conversion**, **Forecasting**, **Milestones** with **Entitlement Management (SLA)** try to **avoid** the custom route.

Industry References?

- **Check** the Salesforce Architect's Template gallery to see if any of the **Industry Reference Data Models** fit your use cases:



- In **Privacy & Consent Management** Model, **App Scheduling** or **Enterprise Quoting** use cases leverage the reference data model.

Reference: [Architect Template Gallery]

Considered Data Storage? x 2KB

- Assets Products Price Book
- **Don't** count against data storage.
- **Designing** large commercial **Product & Pricing catalogs**, or storing purchased goods and services (**Assets**).
- **Consider** using the **Standard** Objects to **minimise** the additional data storage requirements.

Reference: [Monitor Data & Storage]

Solution Patterns for Custom Objects

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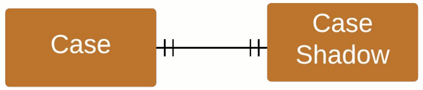
Do not shy away from choosing Custom Objects

Shadow Objects

- Is a concept of creating a **Custom** Object, where records will have a **1:1 mapping** to its parent.



- Useful Pattern to **differentiate sharing** (i.e org-wide settings, preventing rolling-up via RH) on the shadow object.
- Expanding per-object **governor limits** like number of fields or lookups fields to **optimize** license cost by using Shadow objects.

Normalization

Individual

Contact Id	First Name	Last Name
100000100	Dara	Dial
100000104	Tim	Rucker
100000139	Fred	Alvarez
100000206	Anna	Cole

Contact Point Email

Email Id	Contact Id	Email Address
E1	100000100	dara@email.com
E2	100000100	dial@email.com
E3	100000104	tim@email.com
E4	100000104	rucker@email.com
E5	100000139	fred@email.com
E6	100000206	anna@email.com

Contact Point Phone

Phone Id	Contact Id	Phone Number
P1	100000100	+13175551234
P2	100000100	+13175541235
P3	100000104	+12129876543
P4	100000104	+12129866544
P5	100000139	+14152221245
P6	100000206	+161778442389

- Is a technique that involves organizing data into **multiple tables** to **reduce** data **redundancy.**
- Used in Online TX Processing Systems (**OLTP**) to **speed CRUD.**

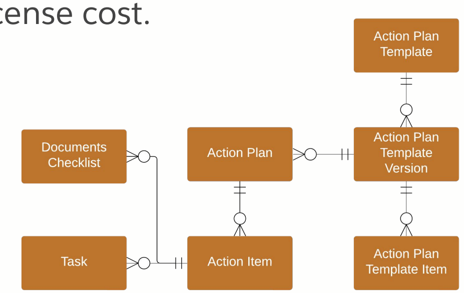
Denormalization

Customer Id	First Name	Last Name	Home Phone No	Mobile Phone No	Work Phone No
100000100	Dara	Dial	+13175551235	+13175551234	+14155551234
100000104	Tim	Rucker	+12129876544	+12129876543	+14259876543
100000139	Fred	Alveraz	+14152221256	+14152221245	+15102221245
100000206	Anna	Cole	+161778442378	+161778442389	+165078442389

- In contrast, the data is **centralized**, stored on the **same object**, it improves **performance** by simplifying complicated table joins.
- Used in Online Analytical Systems (**OLAP**) to speed **query & analytics**.

Borrow from Add-Ons ➕

- Add-ons like **CPQ**, **Field Service** & Salesforce **Industry Clouds** have **amazing** data models designed by Industry Experts.
- If you only need one / few of the features offered by an add-on, consider **referencing** the data model & custom building the functionality to optimize license cost.



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Data Governance Considerations

Foundational Principles beyond Data modeling

Foundational Principles for Data Governance 1/2

Data Encryption

- Certain industries and regions may have **strict** guidelines re **encrypting sensitive** data in terms of Personally Identifiable Information (**PII**), Protected Health Information (**PHI**)
- **Leverage** the Salesforce **Shield Platform Encryption** to encrypt your data at rest.

Platform Encryption

Data Masking

- **Sensitive** nature of the PII, PHI data in Industries such as Financial Services & Healthcare is **high**.
- Sandboxes with **un-masked sensitive** customer data can be **risky** & can be **exploited** by the Developers.
- Consider leveraging **Salesforce Data Mask** as a solution to **mask** & **anonymise** data in Sandboxes.

LDV / Archival

- **Calculate** the data volume of your use case to see if you are at risk of hitting **LDV thresholds**.
- Consider **indexing**, **tuning queries**, **denormalization**, **archival**, and leveraging any **commercial solutions** to improve your data strategy.

Foundational Principles for Data Governance 2/2

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Backup / Restore

- Don't forget about data backup and restore for **business continuity.**
- Consider Salesforce **Backup & Restore** or third party solutions for these use cases.

odaseva Own{backup}

Governance

- Regularly **maintain** the data model which you have built, do not let it **fall apart.**
- Set up data **governance bodies** & processes to ensure that your data is **relevant** & stored **efficiently.**
- **Document** & distribute your **data model**, **data dictionary,** meaningful **descriptions** on objects/fields.

Compliance

- Consider relevant **compliance regulations** when designing data models.

GDPR HIPAA COMPLIANT PCI-DSS COMPLIANCE

- Leverage **Consent Management** objects, data **classification**, and 3rd party solutions such as **Odaseva** or **Transcend Data Privacy** to align with your industry policies.

Closing Thoughts

Privacy

Make use of Data Classification metadata fields and the consent management objects to manage customer privacy requirements.

Start with Standard Objects

Review business requirements and map them to the closest fitting Standard Object or Managed Object if possible.

Custom Objects - Use Wisely

If you don't find a good fit and/or can't mitigate gaps, then go with a custom object.

Documentation

Document and publish the data model. Maintaining an updated data dictionary will enable faster design / build and also serve as a reference to help with compliance requests.

Data Governance

Decision making should include key business and IT stakeholders to ensure alignment, the data model is optimal, and meets strategic business needs.

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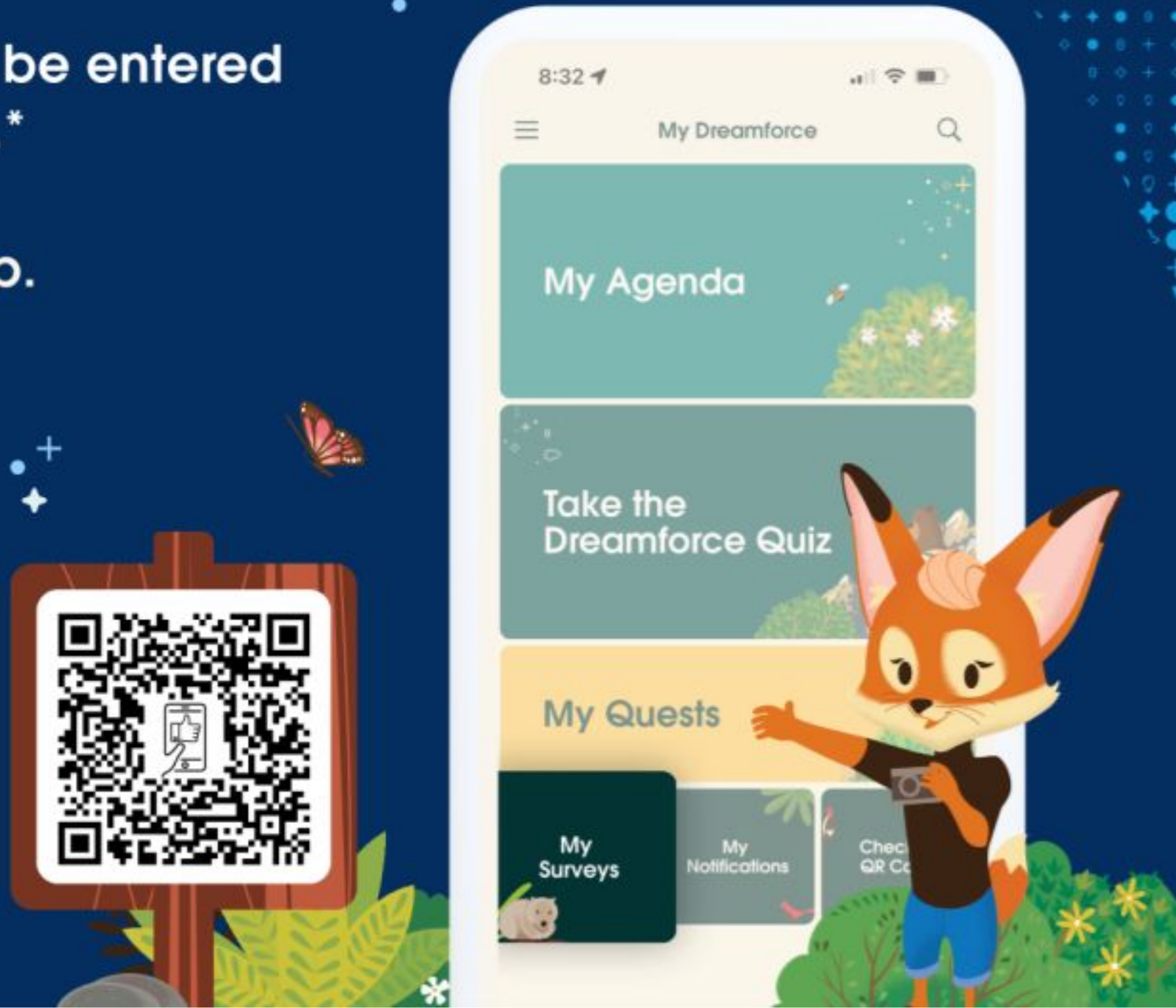

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Thank you