As a product manager tasked with building a product to solve the "dog poop problem," I'll outline a comprehensive approach to define and develop a solution. Below, I'll ask clarifying questions to narrow the scope, define the goals, identify users, list assumptions, prioritize use cases, propose solutions, evaluate tradeoffs, and establish success metrics.

Clarifying Questions

To ensure we're solving the right problem, I'd first ask the following questions to narrow down the scope:

1. What specifically do you mean by the "dog poop problem"?

Are we addressing dog owners not picking up after their dogs in public spaces, finding better ways to dispose of dog waste, or reducing its environmental impact?

For this exercise, let's assume it's about dog owners not picking up waste in public spaces.

2. Is this for a particular region or a widespread issue?

Let's assume it's a widespread issue, but we'll focus on urban areas where the problem is more pronounced.

3. Web-based product or mobile app?

Let's assume a mobile app for accessibility and convenience.

4. iOS, Android, or both?

Let's assume both to maximize reach.

5. Standalone product or integration with an existing solution?

Let's assume there are some local initiatives but no comprehensive solution, so a standalone product is preferred.

Clarified Scope

Based on the assumed answers, the scope is:

- Problem: Dog owners not picking up after their dogs in public urban spaces.
- Solution Type: A standalone mobile app available on iOS and Android.
- Focus Area: Urban environments where the issue is more visible and impactful.

Goal

The goal of the product is to encourage dog owners to pick up after their dogs and dispose of the waste properly, while empowering the community and local authorities to address the issue effectively.

Users

The product serves three primary user groups:

1. Dog Owners
    - Individuals walking their dogs in urban public spaces who need tools or motivation to clean up after their pets.
2. Non-Dog Owners
    - Pedestrians, park-goers, or residents affected by dog waste who want cleaner public spaces.
3. Local Authorities
    - Municipalities or park management responsible for maintaining cleanliness and enforcing regulations.

Assumptions

To guide the product design, I'll make the following assumptions:

1. Dog Owners: They're more likely to pick up waste if it's convenient (e.g., easy access to bags and bins) and if there are incentives (social or tangible).
2. Non-Dog Owners: They're frustrated by the problem and want a way to report incidents or see accountability.
3. Local Authorities: They're interested in reducing the issue but lack resources for widespread enforcement.

Use Cases

Below are prioritized use cases for each user group. For the initial scope, I'll focus on P1 (highest priority) use cases.

Dog Owners

Use Case	Priority
Easily find and access dog waste bags	P1
Know where the nearest waste disposal bins are	P1
Be rewarded for picking up after my dog	P2

Non-Dog Owners

Use Case	Priority
Report areas with frequent dog waste issues	P1
See statistics on area cleanliness	P2

Local Authorities

Use Case	Priority
Track problem areas	P1
Communicate regulations to dog owners	P2

Potential Solutions

Here are proposed solutions for the P1 use cases, along with their business impact and cost to build (assessed as Low, Medium, High).

Dog Owners

Use Case	Potential Solution	Business Impact	Cost to Build	Priority
Easily find dog waste bags	Mobile app with map showing nearby bag dispensers	High	Medium	P1
Find nearest waste disposal bins	Mobile app with map showing nearby bins	High	Medium	P1

Non-Dog Owners

Use Case	Potential Solution	Business Impact	Cost to Build	Priority
Report dog waste issues	App feature to submit reports (location, optional photo)	High	Low-Medium	P1

Local Authorities

Use Case	Potential Solution	Business Impact	Cost to Build	Priority
Track problem areas	Basic dashboard with report aggregation and heat maps	High	Medium	P1

Prioritization for MVP

For the Minimum Viable Product (MVP), I'll prioritize:

- Mapping feature for dog owners (bag dispensers and bins).
- Reporting feature for non-dog owners.
- Basic dashboard for local authorities.

These solutions have high business impact and manageable costs, addressing core needs across all user groups.

Tradeoffs

1. Comprehensive vs. MVP

- Option 1: Build all features (e.g., rewards, advanced analytics).
- Option 2: Start with an MVP (mapping, reporting, basic dashboard).

Decision: Go with the MVP to launch quickly, validate the concept, and iterate based on feedback.

2. Free vs. Monetized

- Option 1: Free app funded by local governments or sponsorships.

- Option 2: Monetize via ads or premium features.

Decision: Start with a free app to maximize adoption and focus on solving the problem, exploring monetization later.

Success Metrics

To measure the product's effectiveness, I'll track:

Key Metrics

- App Downloads and Active Users: Adoption rate among target users.
- Reports Submitted: Engagement from non-dog owners.
- Mapping Feature Usage: Frequency of dog owners accessing bag/bin locations.
- Reduction in Complaints: Feedback from local authorities on decreased dog waste issues.

Indicative Metrics

Dog Owners:

- Number of map accesses.
- Self-reported waste pickups (if added later).

Non-Dog Owners:

- Number of reports submitted.
- User satisfaction with reporting (via surveys).

Local Authorities:

- Number of reports viewed or acted upon.
- Feedback on dashboard utility.

Product Summary

The proposed product is a mobile app (iOS and Android) designed to solve the dog poop problem in urban areas by:

- Helping dog owners find dog waste bags and disposal bins via a mapping feature.
- Empowering non-dog owners to report problem areas.
- Supporting local authorities with a basic dashboard to track issues.

Initial Scope (MVP)

- Mapping Feature: Displays nearby bag dispensers and waste bins.
- Reporting Feature: Allows users to submit dog waste incident reports.
- Basic Dashboard: Aggregates reports for authorities to view problem areas.

Future Enhancements

- Rewards system for dog owners.

- Advanced analytics and heat maps for authorities.
- Integration with local government services.

This solution balances user needs, feasibility, and impact, providing a practical starting point to address the dog poop problem effectively.