Product Requirements Document (PRD)

Project Title: Population of Heaven

Purpose: To create a funny, data-driven interactive website that answers the question: "Are there more dogs or humans in heaven?" The site will allow users to customize theological assumptions and calculate the population of heaven based on real-world data and doctrines.

Core Questions the Site Answers:

- What is the current population of heaven?
- Are there more dogs or humans in heaven?

User Interactions (Inputs):

1. **Choose Your Afterlife Doctrine (Human theology):**
   - Christianity (Catholic)
   - Christianity (Protestant – Evangelical)
   - Christianity (Protestant – Mainline)
   - Christianity (Orthodox)
   - Islam (Sunni/Shia)
   - Judaism (Orthodox)
   - Judaism (Reform)
   - Universalist
     - Universalist
   - Atheism (assumes 0 humans in heaven)
2. **Choose Your Dogtrine (Dog theology):**
   - Toggle: "Do all dogs go to heaven?" (Yes/No)
     - If No: Slider input: "What % of dogs are good?" (0% - 100%)
3. **Edge Cases & Exceptions (dynamic by doctrine):** Only show toggles that apply to the selected Afterlife Doctrine. Each toggle also has a default state. Hidden items still use a default setting in the back-end logic.

   Ask the users: Should we count (see table)

Doctrine	Unbaptized Infants	People Who Never Heard Of the Religion	Other Monotheists with Good Morals	Atheists / Polytheists with Good Morals	Those Still in Purgatory?
Catholic	👁 Shown, Default ❌ No	👁 Shown, Default ❌ No	👁 Shown, Default ❌ No	👁 Shown, Default ❌ No	👁 Shown, Default ✅ Yes

Evangelical	🪣 Hidden, Default N/A	🪣 Hidden, Default ❌ No	🪣 Hidden, Default ❌ No	🪣 Hidden, Default ❌ No	🪣 Hidden, Default N/A
Mainline Protestant	🪣 Hidden, Default N/A	👁 Shown, Default ✅ Yes	👁 Shown, Default ✅ Yes	👁 Shown, Default ✅ Yes	🪣 Hidden, Default N/A
Orthodox Christian	🪣 Hidden, Default N/A	👁 Shown, Default ❌ No	👁 Shown, Default ❌ No	👁 Shown, Default ❌ No	🪣 Hidden, Default N/A
Muslim (Sunni/Shia)	🪣 Hidden, Default N/A	👁 Shown, Default ✅ Yes	👁 Shown, Default ❌ No	👁 Shown, Default ❌ No	🪣 Hidden, Default N/A
Judaism (Orthodox)	🪣 Hidden, Default N/A	👁 Shown, Default ✅ Yes	👁 Shown, Default ❌ No	👁 Shown, Default ❌ No	🪣 Hidden, Default N/A
Judaism (Reform)	🪣 Hidden, Default N/A	👁 Shown, Default ✅ Yes	👁 Shown, Default ✅ Yes	👁 Shown, Default ✅ Yes	🪣 Hidden, Default N/A
Universalist	🪣 Hidden, Default N/A	🪣 Hidden, Default ✅ Yes	🪣 Hidden, Default ✅ Yes	🪣 Hidden, Default ✅ Yes	🪣 Hidden, Default N/A
Atheism	🪣 Hidden, Default ❌ No	🪣 Hidden, Default ❌ No	🪣 Hidden, Default ❌ No	🪣 Hidden, Default ❌ No	🪣 Hidden, Default N/A

4. **Who's Good?** 😇
   - A dynamic section that appears below Edge Cases.
   - Wording updates based on the selected Afterlife Doctrine (e.g., "Evangelicals" vs. "Muslims").
   - Includes two sliders:
     - **"% of [Religious Group] who are good/saved"** — people *within* the selected religion (always shown)
     - **"% of non-[Religious Group] who are good"** — people *outside* the religion
       - Only shown if **any** of the following edge case toggles are ON:
         - People Who Never Heard
         - Other Monotheists with Good Morals
         - Atheists / Polytheists with Good Morals
   - Default values:
     - Inside: 80%
     - Outside: 50%
   - Affects final heaven population based on doctrine and toggle logic

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Output (Results):

- Top Result: "In Heaven, There Are More... [Dogs] / [Humans]"
- Current Population Counts (Large numerals, auto-formatted for clarity):
  - Human souls in heaven
  - Dog souls in heaven
  - Numbers over 1,000,000 are displayed as "X.XX million" or "X.XX billion" to improve readability for users
- (In v1 only, after MVP) Population Over Time stacked bar graph
- (In v1 only, after MVP) "Share your heaven census"

- "Peek behind the theological curtain" (Methodology section, see below)

Methodology Section (Expandable):

- "The calculations": Should give a break down of the math for the user's selections, and therefore how we got to the final population figures
  - See "Heaven population calculation logic" below, for how this works
  - Should explain the purgatory assumptions (if chosen yes):
    - Purgatory - 85% of Catholic heaven-bound souls go to purgatory for 50 years; 15% go directly to heaven
- "The theological defaults":
  - Should give explanations of why the default options were what they were (based on generalizations of the chosen religion), including religious text (or religious scholar) citations
- "The (speculative) base figures":
  - Static text (does not change based on selections made)
  - Shows the table of cumulative historical deaths and then information about where this came from

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Heaven Population Calculation Logic:

The model calculates the population of heaven using the following steps, and the CSV with assumption figures.

For the base model (looking at just this year, 2025), we would:

First get the human population:

1. **Determine Total Deaths**
   - Take the base # of cumulatively dead humans by 2025 (105,000 million)
2. **Filter Human Souls by Doctrine**
   - Based on the selected Afterlife Doctrine, see how many people are in-religion. Multiply by the % goodness (in-religion) – only include those who are good.
   - If "Atheist" is chosen, ignore all else → The human population of heaven will be 0.
3. **Apply Edge Cases**
   - Unbaptized infants: If yes selected, include this number (431 million)
   - People who've never heard: If yes selected, include this number (10,000 million) multiplied by the % goodness (outside of religion)
   - Other monotheists: If yes selected, (1) take the monotheist population (ie 32,558 million), (2) subtract the religion selected, (3) multiply by the % goodness (outside of religion) . Include this number.
   - Atheists / Polytheists: If yes selected, take the atheist/polytheist population (72,442 million), (2) multiply by the % goodness (outside of religion). Include this number.

- Purgatory: If yes selected, do nothing. If No is selected, subtract the population in purgatory (2,600 million)

Then for the dog population:

4. **Determine total dog deaths**
   - Take the base # of cumulatively dead humans by 2025 (30,000 million).
5. **Apply dog entry logic.**
   - If all dogs go to heaven, do nothing else. This is the population.
   - If only good dogs go to heaven, multiply by the % of good dogs. This is the population.

For the later bar chart, we would apply that same logic for every one of the input years (1700, 1750, … 2100). Note that the figures I included above are specifically for 2025 so the other numbers would need to be looked up.

Visual & UI Design Goals:

- Tone: Whimsical-professional (e.g. "Dogtrine")
- Research-site feel with sliders, toggles, clean charts
- Fully responsive for mobile and tablet
- No fake citations or joke data

Later Features (Not MVP):

- **Population Over Time Chart (1700–2100)**
  - A stacked bar chart showing the cumulative population of humans and dogs in heaven over time.
  - Shown in 50-year increments: 1700, 1750, 1800, … 2100
  - Includes historical data up to present, and projections into the future based on:
    - Estimated human death rates
    - Global pet population trends (domesticated dogs)
    - Future assumptions extend user-selected doctrine + goodness logic into future years
  - Hover tooltips show human + dog totals at each time slice
  - Intended to be both amusing and data-rich (like a UN chart, but with dogs)
- Social sharing: "Share your Heaven Census"
  - Simplest is just to have the URL include the chosen parameters so then this just involves sharing the URL

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Who's in Heaven? A Spiritual Census

[body text]
Ever wondered if there are more dogs or humans in the afterlife? Now you can find out.
Welcome to the most serious, silly, and spiritually speculative population model ever made.
Using real demographic data, historical mortality estimates, and theological reasoning from a few major religions, this tool lets you calculate the current population of heaven — and whether it's mostly humans… or dogs.

You'll enter:
- Which religion defines the afterlife
- What happens to babies, nonbelievers, and the unreached
- Whether dogs get judged — or just welcomed in

Behind the scenes, we crunch the numbers to show you the afterlife breakdown.

[Button]: Let's go!
(This scrolls you down to the input section)

[Inputs section]
1. 💀 Choose Your Afterlife Doctrine

Pick a religious framework to shape the main rules for entry.
2. 🐶 …And Your Dogtrine

What's your position on pups?
3. 🔍 Any Exceptions?

Theology is full of edge cases: Should we include these groups? We've offered some default choices based on your doctrine, but you don't have to be so dogmatic about them.
4. 😇 Goodness, Me

Not everyone gets a halo. Who's actually well-behaved?

[Button] 🐶🧍 Run the Heaven Census

[Results page]
One hell (ahem, heaven) of a result:
In Heaven, There Are More… [Dogs] / [Humans]
- Human souls in heaven
- Dog souls in heaven

The Heaven Population Over Time
[insert graph]

[graph tooltip]

1850 Afterlife Audit
👤 *Humans in heaven: 2.1 billion*
🐶 *Dogs in heaven: 2.9 billion*
So heaven was mostly (58%) canine.

🔗*Share your heaven census*

Methodology Section Copy

The Calculations

{Religion Selected}: {Number} Total x {Percent good in-religion} "Good" = {Number}

Unbaptized infants ({included/excluded}): {Number or Zero}

People who have never heard of the religion ({included/excluded}): {Number or Zero} x {Percent good out-religion} "Good" = {Number}

Other monotheists ({included/excluded}): {Number or Zero} x {Percent good out-religion} "Good" = {Number}

Atheists or Polytheists (everyone else) ({included/excluded}): {Number or Zero} x {Percent good out-religion} "Good" = {Number}

Those in Purgatory* ({included/excluded}): {Number or Zero}

Total = {Sum total number}

* Purgatory note: We assume very good Catholics and strong progress through purgatory. In our model, 85% of Catholic heaven-bound souls go to purgatory for 50 years; 15% go directly to heaven.
- The 85% is based on most people needing to pass through purgatory. There is no official Catholic teaching on what percentage of souls go to purgatory, but many theologians suggest that the majority of the saved are not perfectly purified at death and therefore require post-death cleansing. In fact, perhaps 15% having saintly perfection is too high of a figure!
- The 50 years is more speculative and definitely frowned upon by the church, which discourages any fixed time estimates. Pope Benedict XVI explained, "It is clear that we cannot measure the duration of this transforming burning in terms of the chronological measurements of this world." However, since purgatory length depends on the soul's attachment to sin, before 1967, Catholic indulgences (basically, punishments for sin) were often labeled in terms of days or years — like 'a 300-day indulgence' — widely interpreted as time off in purgatory. Though the Church later clarified these were symbolic, the idea of purgatory lasting decades or hundreds of years stuck around in popular Catholic imagination. And since "God only knows" or "divine time" can't be plugged into an Earthly mathematical model, we chose 50 years. 🤷‍♀️

The Theological Defaults

Each religious tradition has its own teachings about who enters heaven — but not all are clear-cut, and many are debated within the tradition itself. For the sake of modeling, we made assumptions that reflect mainstream interpretations, historical trends, and scholarly consensus rather than edge-case or fringe beliefs.

💡 How We Chose the Defaults:

- When official doctrine exists, we used it.
  Example: The Catholic Church teaches that baptism is necessary for salvation, so the default excludes unbaptized infants unless toggled on.

- When doctrine is ambiguous or pluralistic, we modeled the most common interpretation.
  Example: Mainline Protestants vary widely, but tend to emphasize God's mercy — so the default is inclusive of nonbelievers.

- When no doctrine exists, we used contextual logic.
  Example: Atheism assumes no afterlife, so the default population of heaven is zero.

- When traditions are inclusive, we honored that.
  Example: Universalism includes everyone by default — toggles are hidden because they don't apply.

Each toggle in the Edge Cases section was shown or hidden depending on whether that question is relevant for the chosen doctrine. For hidden items, we still applied a default (shown in the table above) so the math stays complete — even if the user doesn't interact with that setting.

The (Speculative) Base Figures

The following figures underpin the model, and were generated by Perplexity AI, citing research on population trends and extrapolating from them where data was sparser, particularly: (1) to fill in dates pre-1900; (2) to separate out sub-religion data, e.g. Orthodox vs Reform Judaism; and (3) to forecast future populations. Extrapolation was done on a roughly linear basis, i.e. there was no assumption that religion would become exponentially more or less popular. Dog population data was also particularly challenging and therefore more speculative.

[Table]

More notes on Perplexity AI's stated logic, after reviewing 70+ sources:

Overall dog population {expandable section}

1. The earliest confirmed dog remains date back to 14,220 years ago in Germany (Bonn-Oberkassel dog). Early population spread was linked to hunting camps and agricultural societies.
2. Domestication Timeline: Mortality rates are tied to human population growth and urbanization.

- Pre-1900 numbers extrapolated from:
  i. Archaeological evidence of working dogs
  ii. Urbanization rates
  iii. Livestock practices
  iv. Tax records (e.g., medieval "dog tithes")
- Dog ratios: Comparative analysis of domestication studies vs. human growth[1]
3. Average Lifespan: Assumed average lifespan of ~12 years for dogs across history.
4. Mortality Rates:
   - Pre-modern societies: Higher mortality due to disease and lack of veterinary care.
   - Modern era: Increased pet populations and euthanasia rates contribute to higher totals.
5. Dog Projections (2050 & 2100):
   - Today, there are approximately 900 million dogs globally. Urbanization trends suggest larger pet populations but shorter lifespans due to health issues.
   - Euthanasia rates and stray dog populations also factor into mortality totals.

Examples of citations: [Scientific Reports (NIH), World Animal Foundation, BMC Veterinary Research (NIH), American Veterinary Medical Association, University of Pretoria, Europe PubMed (NIH), Wellbeing International, Britannica, Live Science]

Overall human population {expandable section}
1. Population Growth Rates: Historical population estimates were used to calculate cumulative deaths based on average life expectancy and mortality rates.
2. Pre-1900: Archaeological density models × regional population estimates
   - No systematic death records until 1850s
   - Pre-industrial societies had high infant mortality rates (~40% of childhood deaths).
   - Major pandemics (e.g., Black Death) reduced cumulative totals before 1700.
3. Post-1900: Modern Data Sources: UN demographic data and census records were used for post-1900 estimates.
   - 108 billion total born (est. since 55,000 BCE) minus ~8.1 billion alive today = 100 million dead as of 2025
4. Human Projections (2050 & 2100): Published projections and extrapolations
   - Assumes continued population growth until mid-century followed by stabilization or decline in some regions.
   - Aging populations contribute to higher death rates.

Further breakdown, over time with mortality notes:

Year	Total Deceased (Billion)	Key Mortality Drivers
1700	5.5-6.5	Plagues, infant mortality (40% childhood deaths)
1750	6.8-7.8	Smallpox, malaria, famines

1800	8.5-9.5	Early industrialization health impacts
1850	11-13	Cholera pandemics, colonial conflicts
1900	16-18	TB/influenza, maternal mortality
1950	23-25	WWII, pre-antibiotic era
2000	48-52	AIDS crisis, aging populations

Examples of citations: [CDC, Answers, Our World in Data, Wikipedia, PloS Medicine, Pew, Institut National D'etudes Demographiques, Population Reference Bureau, Statista, World Economic Forum (climate deaths), World Population Review, World Economic Form (2100 pop)]

Religion-specific populations {expandable section}
- No centralized records before 20th century
- Religious estimates were therefore instead based on historical migration patterns and regional dominance patterns
- These estimates should be treated as approximate ranges rather than precise counts, particularly for pre-20th century figures where records are fragmentary.
- For sub-religions, assumed certain breakdowns:
    - Christianity: 33% Catholic, 25% Orthodox, 42% Protestant pre-1900
    - Islam: 80% Sunni/20% Shia split maintained through history
    - Judaism: 90% Orthodox pre-1800, 60% post-WWII

Examples of citations: [On historical figures: J Sci Study Religion (NIH), Met Museum, Library of Congress, Khan Academy, Wikipedia (Islam), Britannica, Sikh Net; General or present-day: Pew (Muslim), Britannica, Pew (India), Catholic.com, Pew (Orthodox Christianity), Pew (Mainline Protestant), Council on Foreign Relations; Future projections: Pew (world), Pew (US), Pew (world), Pew (world)]