Exercise 1.1

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# **Artwork Personalization at Netflix: How Data Shapes What You See**

Netflix Technology Blog Link: <https://netflixtechblog.com/artwork-personalization-c589f074ad76>

Netflix is great at using data to personalize everything for its users, and one cool way they do this is through **artwork personalization**. They collect data like **what you watch, your genre preferences, and how you interact with different titles**. They also use **multi-armed bandit algorithms** and a **contextual bandit model** to figure out which artwork grabs your attention the most. By analyzing this data in real time, they can quickly learn what kind of images you’re more likely to click on.

What Netflix found out is that **personalized artwork** makes a huge difference in getting people to engage with new content. For example, if you’re a fan of comedies, you might see artwork featuring a well-known comedian, while someone who loves drama might be shown more intense or emotional visuals. This makes unfamiliar titles feel more relatable and increases the chances that you’ll give them a try.

The goal here is to **boost user engagement** and **help people discover new shows and movies** that they might have skipped otherwise. By aligning the artwork with what they know about your preferences, Netflix can make its recommendations feel more tailored and personal.

The result? A noticeable bump in user interaction, especially for shows people haven’t watched yet. Netflix did face some challenges, like making sure constant artwork changes didn’t confuse users, but overall, personalizing what you see has made a big impact on how users discover content.

## **How Big Data is Changing Health and Human Services**

The article talks about how data analytics is making a big difference in health and human services by helping people get the benefits they need more easily and helping agencies work more efficiently. One example is how **data mining and predictive analytics** are being used by social service agencies to spot **fraud** and better focus on who actually needs help.

In **Los Angeles County**, for example, they use **algorithms** to analyze data and find signs of potential fraud in California’s child-care program, allowing investigators to focus on the most important cases first. This makes the whole process a lot more proactive instead of just waiting for tips to come in.

Another example is how data is helping **welfare workers** in **Indiana** make really tough decisions. They now get insights from data that guide them when working with families in difficult situations. Overall, using big data in health and human services has made it easier to get resources to the people who need them and has made the system work a lot more smoothly.

## **Balancing Household Chores and Study Time My Way**

* **Context**:

I manage household tasks and study, so I’m juggling chores, cooking, studying, and making time for myself. It can get a little overwhelming trying to keep everything balanced while also making sure I get my study time in.

* **Goal**:

To figure out a better way to manage my time between household stuff, studying, and personal time, so I can get everything done without feeling stressed or rushed.

* **Data**:
  + How much time I spend on each thing (chores, cooking, studying, breaks, personal time)
  + Which tasks are most important and need to be done first
  + How often I do each task (daily, weekly)
  + When I feel most productive during the day
* **How to Collect Data**:

I could use a time-tracking app or even a simple spreadsheet to log how long each task takes throughout the day. I’d also note when I feel the most productive and which tasks end up taking more time than I expected.

* **Description of How the Data Helps**:

Tracking my time would show me where I might be spending too much time (like on chores or breaks) and where I need to dedicate more time (like studying). I could also see when I’m the most productive, which would help me plan study sessions or important tasks during those times. This way, I can create a schedule that works better for me, cuts down on stress, and helps me manage everything more smoothly.

## **Using Data to Send the Right Staff at the Right Time**

To figure out when to send staff and how many to send to each state, data analysis can really make things clearer.

Here’s how I’d approach it:

1. **Spotting Demand Patterns**:

By looking at past data on staffing needs, population sizes, and service demand, I can find trends. For example, certain times of year (like flu season) or specific events might show when states need more staff.

1. **Seasonal and Event-Based Data**:

Data on things like flu outbreaks or severe weather could help predict when demand for staff is going to spike. If certain states have a higher need during winter, for instance, I’d know to send more staff then.

1. **Population and Service Usage**:

I’d also look at the population size and how often people are using the services. Bigger populations or higher usage rates would naturally mean more staff are needed.

1. **Predictive Models**:

Using data from the past, I could build a model to predict future staffing needs. This would help me see where and when extra staff might be needed, based on patterns and trends.

1. **Making the Most of Resources**:

By analyzing when and where staff were needed in the past, I can make sure that I’m sending the right number of people to the right places. This way, I’m not wasting resources by sending too many or too few.

1. **Real-Time Adjustments**:

If there’s real-time data available, I can monitor situations (like outbreaks or emergencies) and adjust staffing levels as needed. This way, I can stay flexible and respond to what's happening in real-time.

By analyzing the data, I’ll have a better idea of when and where staff are needed so I can make smarter decisions about staffing levels and timing.

Exercise 1.2

# **Clarifying & Funneling Questions**

1. Which states have the largest vulnerable populations in need of additional medical support during flu season?
   1. Do certain states have a higher percentage of elderly or chronically ill individuals compared to others?
2. What is the historical influenza death rate in each state, and how does that connect to the vulnerable populations?
   1. How have the influenza death rates changed over time?
3. How many people in each state have received a flu shot, and what does the breakdown look like by age and other factors?
   1. Do flu shot rates tend to be lower in rural states compared to urban ones?

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# **Privacy and Ethics in Health Data and Staffing Decisions**

1. What are the privacy and ethics laws around collecting, storing, and analyzing health data in each state?
2. Are there specific rules we have to follow when handling sensitive health data, especially for vulnerable populations?
3. Are there any ethical concerns in using flu data to make decisions that could affect patient care in different areas?

Exercise 1.3

# **Game Plan - Managing the Influenza Staffing**

#### **Stakeholder Communication**

The **key stakeholders involved** are the medical agency frontline staff (nurses, physicians, physician assistants, and doctors), hospitals and clinics using the staffing agency’s services, influenza patients, and the medical staffing agency administrators.

I’ll use a combination of meetings and emails to keep everyone updated. Progress reports will be sent at 25%, 50%, and 75% completion points to keep everyone informed about the project’s status.

In the event of urgent issues or delays, I’ll send updates via email, ensuring there’s a clear record, and follow up with meetings or calls if necessary.

#### **Schedule and Milestones**

Key tasks for **Achievement 1** include designing the data research project, sourcing the right data, profiling and checking data integrity, conducting statistical analyses, hypothesis testing, and consolidating insights into an interim report.

Progress will be tracked through milestones when data sourcing, statistical analysis, and testing are completed. Reaching the data visualization phase will mark a significant point.

For **Achievement 2**, the tasks include:

* Introduction to data visualization
* Visual Design Basics and Tableau
* Creating composition and comparison charts
* Temporal visualizations and forecasting
* Statistical visualizations (e.g., histograms, scatter plots)
* Spatial analysis
* Textual analysis
* Storytelling with data presentations
* Presenting findings to stakeholders

The workload will be divided into these sections, with progress checks every two weeks. Each section will have a final deadline set for four weeks.

#### **Project Deliverables**

At the end of Achievement 1, I’ll deliver an interim report consolidating the findings from the analysis.

By the end of Achievement 2, I’ll produce a video presentation, presenting the data through storytelling, supported by visual elements like charts and graphs.

The format for all deliverables will be visual presentations, making complex data easy to understand with clear explanations.

#### **Audience Definition**

The audience for this project will mainly be staffing agency administrators and healthcare professionals.

The deliverables will be tailored to include low to mid-level technical details, ensuring clarity without overloading them with technical jargon.

Presentations will use visual charts, graphs, and explanations that make the data and numbers straightforward and accessible to the audience.

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