
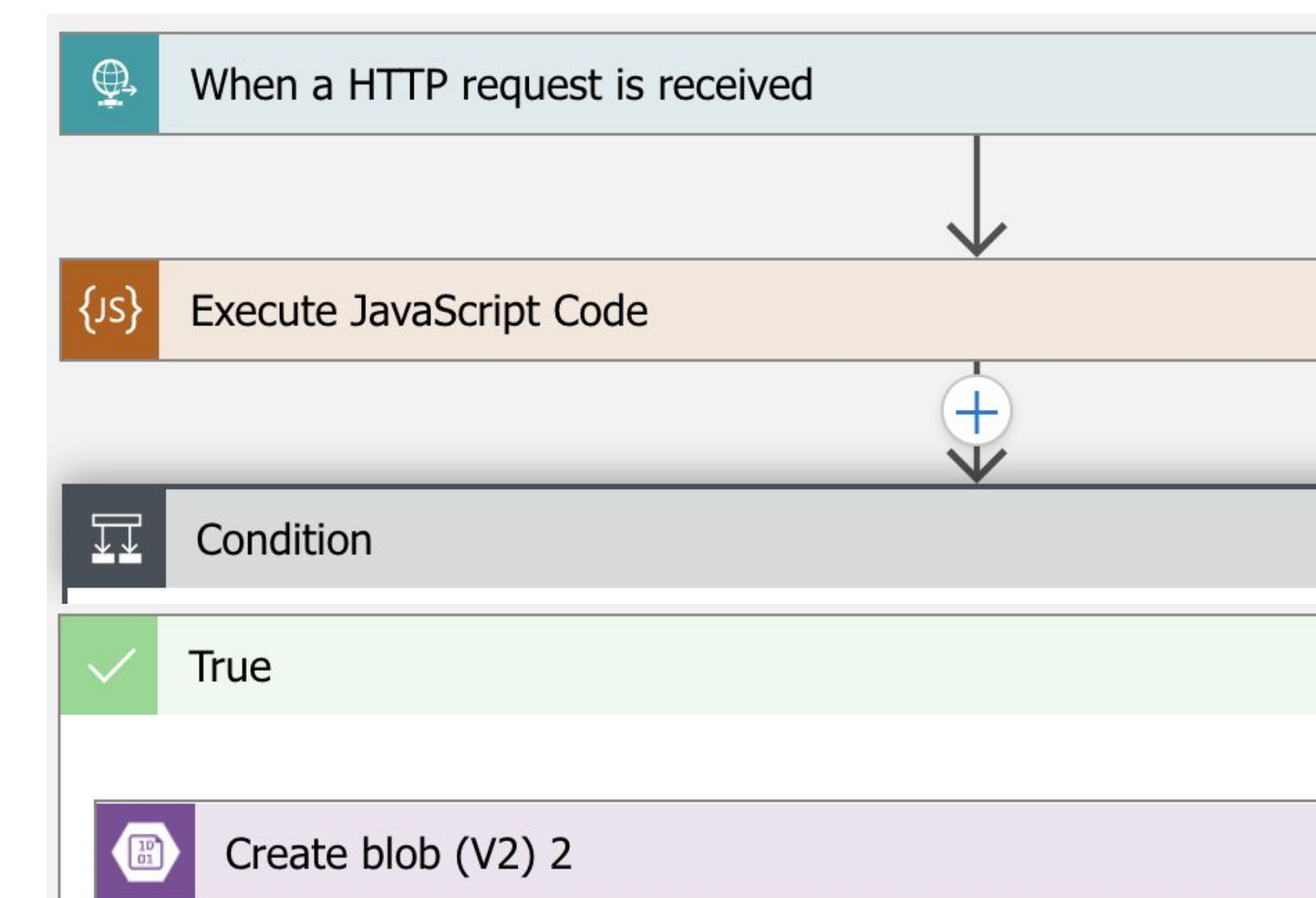


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## Pipeline Team Achievements

- Established third-party Garmin and Fitbit API connection; published our Fitbit OAuth 2.0 guideline on Medium (QR code) 
- Automated API requests, data transformation with **Azure API Management, Logic Apps & proprietary Javascript code**



- Transformed data stored in desired csv format as Blob files
- Pipeline output: **heart rate, steps, sleep activity data**

## Moving Forward

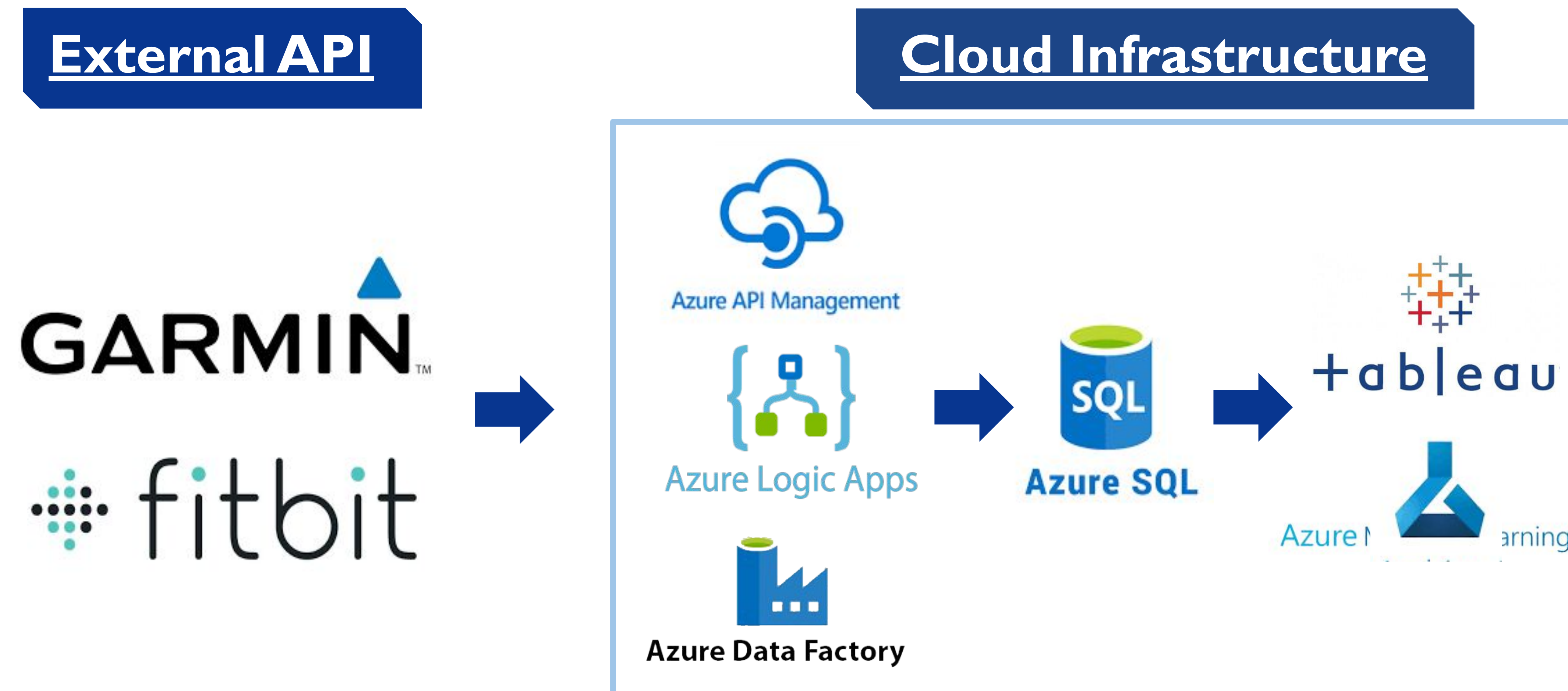
- Architect a sustainable cloud-based infrastructure that builds on the current pipeline for future studies
- Migrate retrospective participant data to the cloud

# COVIDENTIFY

In April 2020, the BIG IDEAs Lab launched the CovIdentify study to develop an **early detection model for SARS-CoV-2** based on wearables data. To set the stage for future studies and to extract actionable insights from the collected data, our team aimed to develop:

- A **scalable data pipeline** that extracts, transforms and stores data via third-party wearables API for research (*Pipeline Team*)
- A **data visualization dashboard** that offers insights into survey completion and adherence (*Dashboard Team*)

## Project Workflow

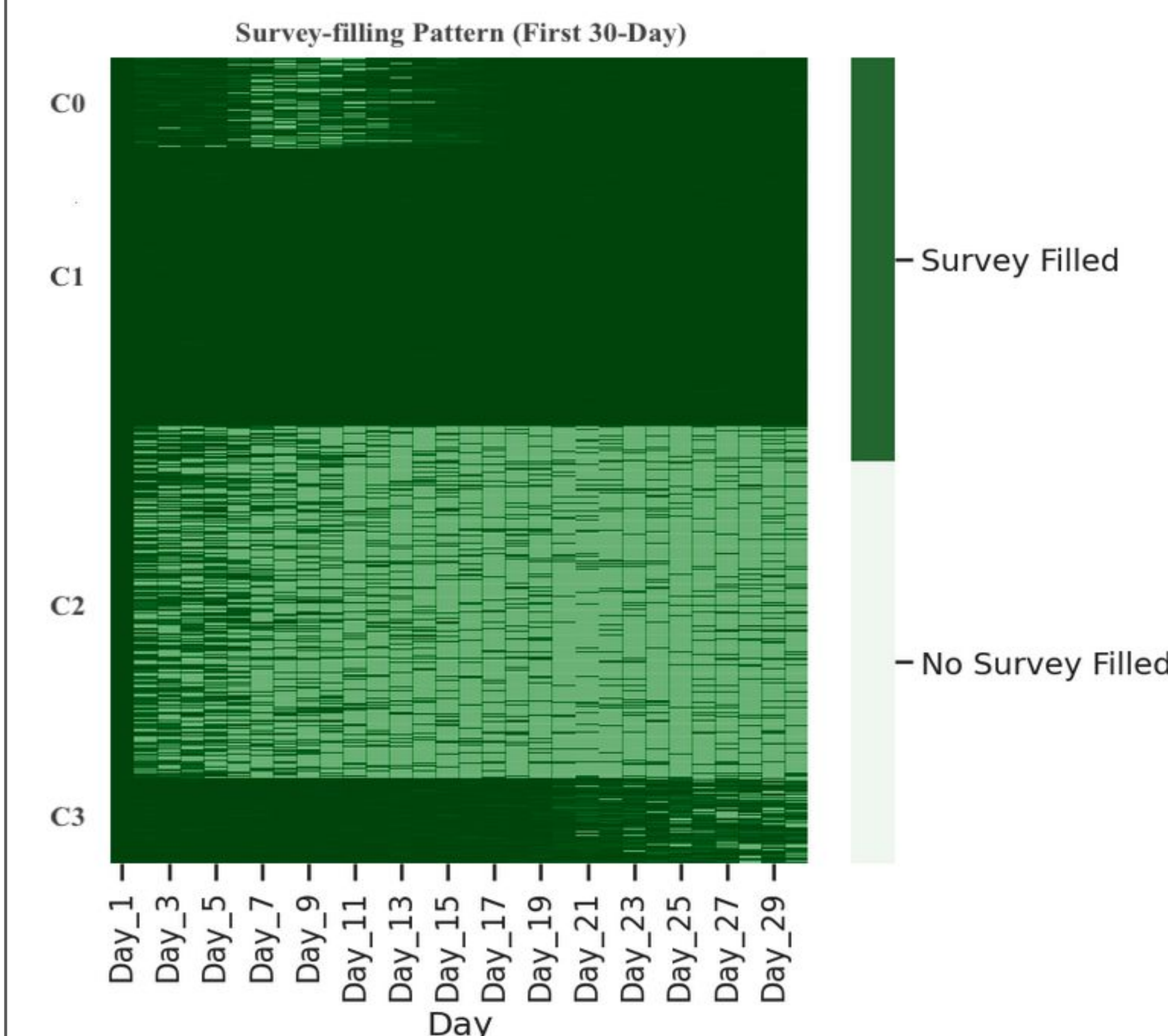


## Project Significance

- One of the first labs at Duke to work with personally identifiable information on Azure cloud platform—an important step for data security and scalability
- Submitted “A Method for Intelligent Allocation of Diagnostic Testing by Leveraging Data from Commercial Wearable Devices: A Case Study on COVID-19” paper for publication to Nature Medicine

## Dashboard Team Achievements

- Utilized **k-means clustering** and calculated adherence rates to generate heat maps in an effort to understand survey completion rate



- Performed **Cox regression analysis** to identify significant demographic association with survey adherence rates
- Generated a **real-time dashboard** to visualize survey completion data and gain insight into future behavior

## Moving Forward

- Track real-time survey updates for monitoring individuals with symptoms or positive diagnostic testing
- Improve dashboard interactions for informing researchers and general public