CASE STUDY

Enabling Contact Tracing with QR Codes

How this Government department used our testing and QA expertise to quality engineer its custom contact tracing solution.

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Key outcomes

- Delivered a high quality universal QR code system.
- Over 710,000 unique QR codes used by businesses.
- Reliable, accurate, and timely data for contact tracers.
- Handled over 45 million weekly check-ins.

Technologies

- Salesforce Lightning
- Salesforce VLocity
- Microsoft Power BI
- Google Big Query
- Google Android
- Apple iOS

Solutions

- Testing & QA
- Test Automation
- Performance Testing
- Security Testing
- Accessibility Testing
- Outcome Based
- Staff Augmentation

Tools

- Microsoft Azure DevOps
- Postman
- BrowserStack
- Swagger

The problem

The Department of Health (DoH) provides support for the health and wellbeing of all citizens. The Department focuses on policies and services for areas such as health, mental health, ambulance services, and ageing.

Additionally, DoH has been the lead agency in the state's response and recovery efforts to COVID-19. During the pandemic, a key challenge it encountered in slowing the spread of the virus was accurately identifying and tracking people who have been in contact with an infected person.

When the state came out of months of lockdown, it meant that restaurants, bars, cafes, and shops were opened to the public again. To limit the spread of COVID-19, the state government decided to keep a record of who visited which venue and when, and how to contact them.

This would enable contact tracers to quickly find out if someone from a venue tested positive to COVID-19. It would also enable the notification of any people who were there at the same time they may have been exposed to the infection and should take precautionary measures, such as limiting further contact to slow the potential spread of the virus.

At the start of the pandemic, there was a lack of consistency as to how businesses recorded people's details. Some used pen and paper while others used a QR code that people scanned using the camera on their phone, which then directed them to an online form to fill out or a third-party website that collected details on the business's behalf.

Besides the lack of consistency, there were also concerns whether businesses could adequately store people's personal details, and only for the length of time required. Another concern raised was whether venues were using their contact information to sign them up for marketing mailing lists.

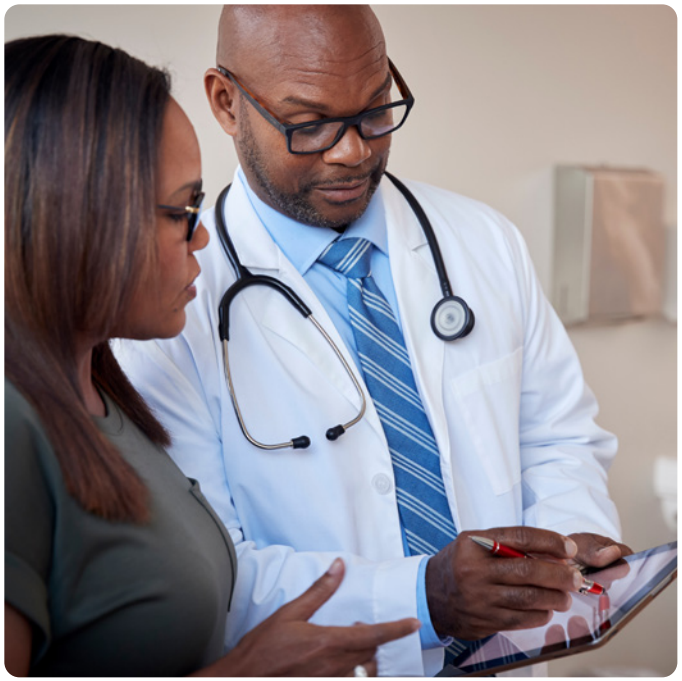
The state government decided to resolve this situation with a universal QR code system. DoH first developed a contact tracing system based on Salesforce to store and manage people's contact information, and then linked it to a specific QR code check-in system that it created to capture people's contact information.

While other countries used a government developed QR code application for its contact tracing, the system used in this state would be different. This was due to the check-in system needing to integrate into the new contact tracing system.

To ensure that the combined solution worked adequately for the state's population, both the contact tracing and QR code checkin systems would need to be thoroughly tested and quality engineered. With rising COVID-19 cases, and an additional surge expected with the end of the lockdowns, this had to be done quickly and efficiently.

The Department did not have this capability in-house, so it would need to rely on an external quality partner to do this for them.

Since development on the contact tracing and QR code checkin systems was taking place during the lockdowns, the partner would need to provide local and remote capability.



The solution

Planit has been a trusted quality provider for DoH since before the start of the COVID-19 pandemic. For this solution, we were proud to continue our work with the Department on the QR code check-in system.

We thoroughly tested both the contact tracing and QR code check-in systems, as well as the integration between them. We also helped quality engineer the performance, security, and accessibility of the systems.

Other quality improvements that we delivered included operational readiness, resilience, release and environments, and post-deployment verification tests in both staging and production. We were also responsible for liaising with and managing the relationships with all the other technology vendors and systems integrators on behalf of the Department.

With lockdowns in place during development, all work on the new systems had to be done remotely. Since Planit had already used a remote delivery model for many years before the pandemic, we had numerous local and interstate consultants contributing to the project.

The speed with which approvals were granted as part of DoH's emergency response to COVID-19 was a crucial factor in the quick delivery of the system. The Department provided our consultants with administrative rights to the systems, which enabled us, instead of the development or support teams, to fix defects as soon as we found them with our testing.

This level of transparency enabled us to find and resolve many defects before user acceptance testing (UAT) took place. This, in turn, meant a quick turnaround of UAT with near zero defects in the production systems.

Time and effort were saved further with the creation and execution of test automation scripts. These scripts were reusable and continued to be used long after the launch to ensure existing functionality remained intact as new functionality was added.

The outcome

Planit and DoH delivered together an intuitively designed and high quality universal QR code system that ensured businesses could safely re-open and resume providing services to the public. The speed with which we were able to quality engineer and test the solution was critical in achieving this timely outcome.

DoH was able to meet its promise of providing a free contact tracing service to businesses in time for the post lockdown rush of patrons and visitors. Over 710,000 businesses were able to quickly and easily request their own unique QR code to print and display on-premises for people to scan and log their contact details on arrival.

The resident services app for Apple iOS and Google Android by state Government further simplified the check-in process. Users downloading the app for the first time had to fill in their contact details one time and then simply scan a venue's QR code using their app to automatically be checked in.

The introduction of a universal QR code system made the task of identifying people who may have come into contact with someone with COVID-19, or notifying a person that they have been identified as a close contact, significantly easier for contact tracers. They now had access to reliable, accurate, and timely data on demand about when, where, and how long a person was at a location, and who else may have been there at the same time and may need to be notified about the potential risk of infection.

Weekly check-ins with the QR code rose to over 45 million as the country emerged from lockdown before settling to a weekly average of 20-25 million. Our performance engineering ensured that the QR code solution was able to handle this large number of user interactions without any issues or downtime.

About Planit

Want to make your software better? At Planit, we do this by providing businesses with the skills, smarts, and solutions needed to improve the quality of their software and the way they deliver it. Through vision, precision and independence, you too can unlock the true value of quality.

Contact us to find out how our right advice, expert skills, and technical solutions can help you achieve success for key projects and gain a competitive edge over the competition.

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