Project Description
Coral reefs contribute significantly to the socio-economic well-being of the people of St Maarten, an island in the Caribbean. These coral reefs are rapidly declining due to various environmental and social factors. The World Federation for Coral Reef Conservation wanted to use recreational divers and local stakeholders to collect information on the status of coral reefs in St Maarten. Such observations will contribute to the development of a Coastal Protection Master Plan for St Maarten. This project developed a mapping tool that consisted of an Android mobile application, a web storage environment, and a web mapping application.

Solution
The solution was based on Open Data Kit (ODK), a set of free and open source tools. Form development, user interface design and navigation logic, were based on XForms, an XML-based mobile data collection specification. A cloud storage solution was deployed and configured in Google App Engine. This is a scalable, Platform-as-a-Service (PaaS) solution for developing and hosting web application on Google Cloud Platform. Quality Control (QC) was done in Google Drive using an add-on called formMule.

Workflow
Divers launch the application on their smartphones, and records their observations. They submit each observation to publish it to an online database. The administrator receives an email notification containing a link to review the observation. Once approved, the record becomes publicly available in the web mapping application.

Conclusion
This project provided an efficient and effective solution that enables citizen scientists to collect information on coral reefs in St Maarten. Industry stakeholders have already shown much interest in adopting the tool in various locations. It has the potential to play a significant role in coral reef conservation.

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