Deedit

CData Powers Data Visualization and Good Deeds with Tesco and the University of Edinburgh

Small actions, big impact.

That's the mantra for Deedit, a startup-like social good collaboration between Tesco Bank and Edinburgh University running in Edinburgh, Scotland in August 2018. Their goal? To see if encouraging many people to do small good deeds creates a big positive impact.

Deedit uses an interactive, mobile-friendly site to help "Deeders" select and do good deeds, connecting them with actions and organizations to:

- Help Edinburgh's homeless
- Help Edinburgh go green
- Help Edinburgh's community spirit

Specifically, Deedit encourages small acts of kindness, ranging from buying a sandwich for a stranger or giving directions to Plogging, a Swedish fitness craze. After completing these acts, Deeders can record their activity via Deedit, sharing a photo of their act of kindness or a selfie. Deedit then uses the power of data visualization to show how these deeds contribute to bigger, positive social change.

The data gathered through this experiment in social good is part of an exhibition called Data Pipe Dreams: Glimpse of a Near Future, the annual interactive pavilion of the Centre for Design Informatics at the University of Edinburgh. The pavillion showcase is part of the world-famous Edinburgh Festival Fringe, which celebrates creativity, performance and entertainment from every continent.

To help with data visualization, Deedit runs a large display screen at their Festival pavilion and trials a Microstrategy Desktop.

But custom-building that visualization from their underlying database was no easy task — especially for their fast-track project.

The Challenge: Data Visualization from DynamoDB

Simon Caruana is a Lead Engineer for Tesco Bank and developed the data layer and data visualization for Deedit. Working with a fast-track timeline, he built Deedit on top of Amazon Web Services (AWS) Dynamo DB (database).

Usually, when it comes to analyzing the data or displaying it, he takes data out of a data operation store, such as AWS Dynamo DB, places it in relational databases, such as MySQL, then connects it to data visualization tools and dashboards. But for this project, that process wouldn't work.

"It was not straightforward to convert all that Dynamo DB data to a relational data format, and we didn't have time for transferring all that data," Caruana said.

Instead, Tesco and Caruana needed a way to instantly move data from Dynamo DB directly into the Deedit platform.

"It was much faster to build a serverless data layer underneath to directly service the app," Caruana said.

But Amazon had no built-in mechanism to connect that Dynamo DB data with external applications like Deedit.

"Usually Amazon will try to do the shortcut work for you, such as through Athena, but in this case, Amazon doesn't have a quick system and can't load data directly," Caruana said.

The suggested route from AWS was to move data from Dynamo DB to an external database and then to Amazon Athena, where Deedit could access live data. But that would be a bulky solution that would take too much time to set up.

"It's a more robust setup. If you're just creating something to monitor an app or need to build a quick and dirty visualization, that's a hole," Caruana said.

So Caruana needed a way to immediately move data from Dynamo DB to the Deedit visualization, and it was clear he needed a driver.

The Solution: The Work Was Already Done — and Supported

As Caruana didn't have the time to develop a custom driver for the Deedit application, he searched online for a quick and painless solution, one that had already done the work of creating direct Dynamo DB connectivity.

After turning online, Caruana found the CData ODBC driver, which provides direct access to live Dynamo DB data through standard ODBC database connectivity.

The Amazon DynamoDB ODBC Driver is a powerful tool that allows users to connect with live data from Amazon DynamoDB NoSQL database, directly from any applications that support ODBC connectivity. It allows users to access DynamoDB data as they would access a database.

The driver makes it easy to:

- Read, write, and update NoSQL tables through a standard ODBC Driver interface
- Gain ODBC / SQL access to live data with full read/write access
- Access, analyze and report on data with nearly any SQL-based tool
- Quickly import, export, backup, analyze, report, transform, integrate and more

The CData ODBC driver ultimately helped Caruana fill the hole in Amazon's ecosystem, rapidly moving data from Dynamo DB to Deedit.

"Even if you're building all in AWS, CData makes it so you can manage without a certain amount of pain and expense," Caruana said.

Caruana put the driver to work, but the Deedit app required edge-case scenarios, requiring Caruana to put the driver through new paces and push the limits of live connectivity. So he turned to the CData support team, which assisted Caruana with deployment and supported new functionalities. Now, CData drivers play a critical role in data visualization for the Deedit app.

"The CData ODBC Driver worked brilliantly," Caruana said.

The Results: Live Data Visualization

CData is powering the live load layer from AWS Dynamo DB to Deedit's dashboard, as illustrated below:
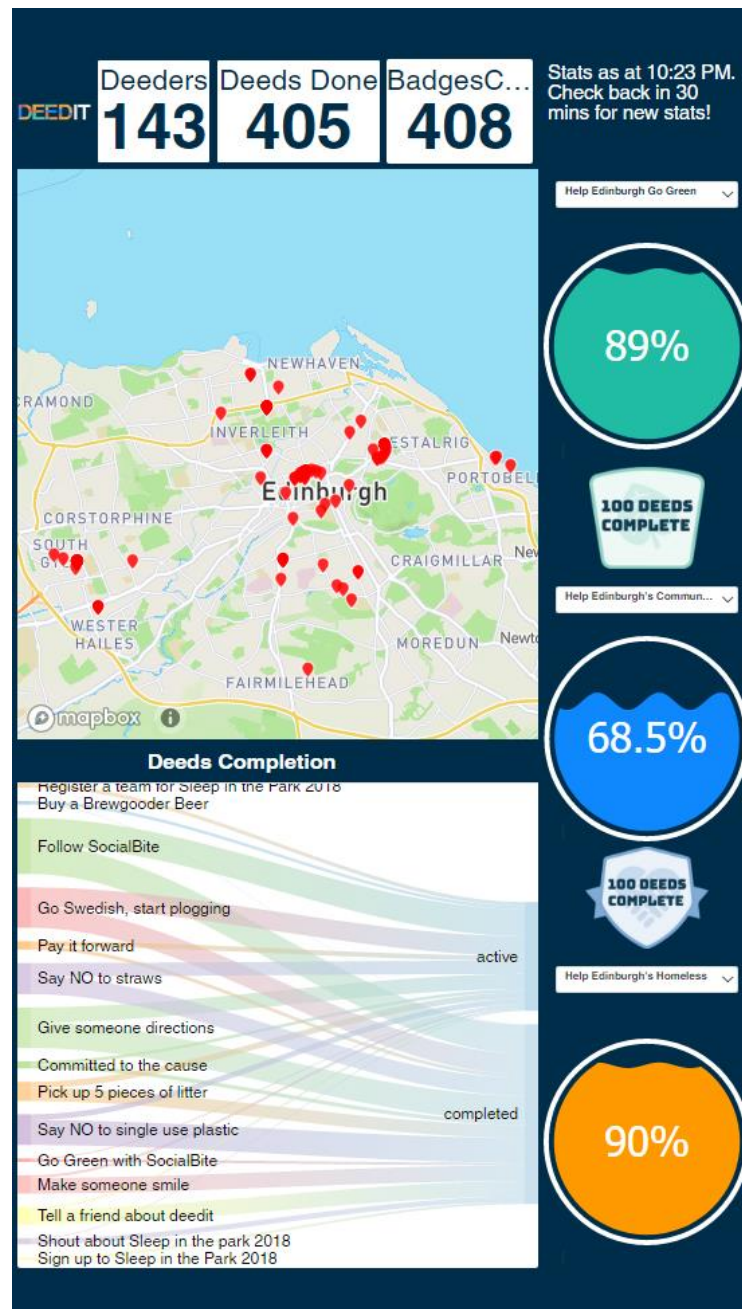
With the CData ODBC driver, Tesco and the University of Edinburgh were able to drastically reduce the time to develop Deedit and bring it to market.

> *"The CData connector is definitely a contender for anyone looking to build quick dashboards out of DynamoDB, as the other traditional routes (like using data pipelines to re-land the data to a RDS etc.) would just have taken too long and carried too much overhead. Sticking CData in there cut the deploy time considerably, for the same outcome."*
>
> **— Simon Caruana, Lead Engineer, Tesco Bank**

More about Deedit

Deedit has been developed as part of Project Mercury, a unique collaboration between the Centre of Design Informatics and Tesco Bank designed to explore Fintech, develop talent and foster innovation and creative thinking.

> *"One of the challenges we face is helping people understand the impact new data technologies will have on their lives. The partnership with Tesco Bank has been a fantastic help."*
>
> **— Chris Speed, Director of the Centre for Design Informatics – University of Edinburgh**

It is hoped this research will demonstrate how similar types of digital technology can find use in corporate social responsibility programs to drive engagement, transparency and awareness.