

Case Study

Artfinder

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Creating Powerful, Personalised Art Recommendations with Graph Databases

BRANCHE

Arts / Retail

USE CASE

Real-Time Recommendation Engine

GOAL

Deliver highly personalised suggestions, based on captured/tracked user preference

CHALLENGE

- Overwhelming number of possible basket item suggestions
- User inability to articulate detailed likes or dislikes

SOLUTION

Neo4j identifies similarities between artwork items so the user only ever sees relevant suggestions

RESULTS

- Powerful personalised art recommendations based on individual user taste – a first for the emerging online art-buying ecosystem
- Real-time recommendations on hundreds of millions of data relationships
- Neo4j's ease of use, online resources and powerful query language have sped up service enhancement and opened up new ways to attract and retain customers

Rather than the traditional curator-led, advisory art market, London technology innovator Artfinder users get highly personalised recommendations based on user taste.

That's thanks to graph technology that makes personalised recommendations easy, powerful and compelling for this online market.

The Company

The heart of the Artfinder proposition: helping people find the paintings, prints, collages and photography to their taste, budget and personal style. It currently has 600,000 users, buying from 10,000 artists in 106 countries. Every registered Artfinder user gets a personalised home page and every time they log on, it is full of new recommendations based on close behavioural analysis of previous visits.

The Challenge

Artfinder's Chief Technology Officer, David Tilleyshort, says the challenge was to solve the 'needle in a haystack' problem for its users. Hundreds of new artworks are added to Artfinder every day, and he and his team have to present artwork that's relevant to customer interest.

It's a market about individual preference, he comments. "One person can look at a piece of art and say, 'That's rubbish!' and another will say, 'What are you talking about? It's fantastic!'"

For Tilleyshort and the Artfinder's leadership, personalisation is the key route to success, but it has to be done well. "Poor personalisation is worse than no personalisation at all," he observes.

Artfinder's problem of establishing people's interests and finding the most relevant artwork is compounded by the fact that users often don't know how to describe what they want. It would need to collate hundreds of millions of data relationships to cope with this need and build a personal database for each customer.

It's clear a technology platform was crucial to delivering on its brand promise. "A straightforward ecommerce site for art was not going to cut it, primarily because of the sheer volume of art that we had," he states. "And it's just not feasible to manage in real time in a relational database."

The Strategy

Artfinder needed a technology to address these business challenges via a real-time, personalised artwork recommendation engine powered by collaborative filtering. Tilleyshort and his development team evaluated various search engine and machine learning platforms to deliver the personalised recommendations demanded – but ran into a technological roadblock:

"We found these services limited and didn't like the idea of it being a black box - that we didn't know how it worked, we didn't have control," he says.

Combined with the fact that these other software paths did not offer a real-time solution, Tilleyshort concluded only graphs could deliver what was needed.

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"Our technology gives us a definite lead over our competition, many of whom are still focusing squarely on traditional curation."

– Jonas Almgren,
MD, Artfinder

The Solution

After market evaluation, Tilleyshort and his development team opted for leading graph database Neo4j. For Tilleyshort, "What we can get from Neo4j is real-time recommendations."

That's because a graph database prioritises the connections between nodes on the graph representing customers, artworks and artists, allocating as much value to these connections as to the data itself. It can include as much metadata in nodes as it likes, meaning analysis of relationships becomes richer and recommendations are better.

Artfinder was also delighted by Neo4j's ease of use, as well as other positive aspects of working with it: "We looked at other graphs, but were attracted by Neo4j's wealth of community and online resources, while the Cypher query language is very intuitive. It was quite simple to get something up and running very quickly," he confirms.

The Results

Artfinder's Neo4j-powered solution is now promising a whole new art-buying experience, based on highly sophisticated personalised recommendations, potentially revolutionising its target market.

"We can now see that user A is very similar to user B because they have a lot of the same relationships to the same artworks. And if user A favourites this kind of artwork, so will user B."

Even better, this graph-powered engine is being made more powerful thanks to adding more types of relationships and weightings, as well as extra functionality. Artfinder has added many more relationships than product favourites, deepening its offer to interested buyers and winning more market share.

That sets it up for a highly promising future, says the company's leadership, which is convinced that the winner in the emerging global art market will be whoever manages to solve the problem of 'findability'.

"Our technology gives us a definite lead over our competition, many of whom are still focusing squarely on traditional curation," confirms Jonas Almgren, Artfinder's founder and CEO.

Neo4j is an internet-scale, native graph database that leverages connected data to help companies build intelligent applications that meet today's evolving challenges including machine learning and artificial intelligence, fraud detection, real-time recommendations and master data. As the #1 platform for connected data, Neo4j has over three million downloads, the world's largest graph developer community, and over thousands of graph-powered applications in production.

The world's most sophisticated organizations worldwide, from enterprises like Walmart, eBay, UBS, Cisco, HP, adidas and Lufthansa to hot startups like Medium, Musimap and Glowbl, use Neo4j to harness the connections in their data.

Questions about Neo4j?

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