



Customer Success Story

Daffodil enables promasidor to leverage technology in order to conduct a nation-wide quiz show for promoting mathematics education



Customer: Promasidor

Country: Nigeria

Industry: Media and Entertainment

Our Role: Product Engineering



About the Client

Founded in 1979, Promasidor is a Nigeria-based leading manufacturer and supplier of processed foods across 30 countries of Africa. It produces and sells economical powdered beverages, flavor seasonings, powdered milk, cereals, and other food products to 850-million consumers across Africa. The company primarily operates in Nigeria, the Democratic Republic of the Congo, Ghana, Algeria, and Angola. Promasidor Nigeria distributes its products under the brand name 'Cowbell'.

As a part of their branding initiatives and to promote mathematics education in Nigeria (especially for girls), Promasidor wanted to air a mathematics quiz show, named Cowbellpedia on popular TV channels of Africa. The initiative began in 1998 as Cowbell National Secondary School Mathematics Competition (NASSMAC) when it was a written examination without a TV show. After a few weeks of the show airing on TV, there came the need to have a platform where students could register, watch live quiz or get in touch to improve their math skills.

16

quiz levels integrated

57%

increase in registrations

37%

increased in viewer base



'About 56,000 students across the country participated in the qualifying examination of the 2019 Cowbellpedia Secondary School Mathematics TV Quiz Show. This year's figure represents a 27.2% increase over the 44,000 participants recorded last year.'

The Guardian

The Situation

Promasidor Nigeria created a TV series called 'Cowbellpedia' which was aired on many African TV channels. Out of the large number of students that would write the NASSMAC examinations annually, the best 108 were called to Lagos along with their teachers to fight for the ultimate prize and the title of the best mathematics student of the year. The entire quiz was shot and telecasted as episodes for the TV series. After a few weeks of managing the show manually, there came a need to have a platform where students could register, watch live quiz or log in to improve their math skills.

The Promasidor team was exploring various options to develop a digital platform that could help them with the registration and streaming process, and provide the students with a practice guide. The team was searching for a technology arm which could convert their software product visions into a development roadmap and ultimately a market ready solution.

Team Daffodil started with the D&F analysis by conducting brainstorming sessions and focusing on aligning the workflow of the quiz show.

The quiz show cycle was sketched out to be managed through three different applications: A web app (for registration management), a mobile app (for participants to practice), and a desktop app (for live quiz show management).

Impressed with the way our team led the D&F phase and the results it furnished, Promasidor got Daffodil onboard as its dedicated technology partner for the application development. The key challenges that were presented to Daffodil were:

- To build a web application that allows students to register for the quiz show by creating a login account and generating a unique ID.
- To build a mobile application that allows students to practice mathematics questions through gamification and stimulate greater interest in mathematics.
- To build a desktop application for live quiz show management showcasing a steadfast desktop system, with real-time synchronization across multiple devices to get an accurate response and eliminate data corruption.

The Solution

Team Daffodil initiated the project by gaining clear assimilation of the client's requirements and orchestrated the workflow of the game quiz. Web, mobile and desktop applications were developed. The entire system and its modules were put together in an aesthetically appealing interface that complemented the speed of processing the game show and managed real-time information synchronization.

The frontend of the applications was built using AngularJS which offers a rich and responsive user experience. jQuery was used with CSS3 to create great-looking effects and animations to ensure the audience is kept engaged. The server-side of the applications are built using ASP.Net as it is popularly used to develop the fastest and most scalable applications.



The Windows Presentation Foundation (WPF) was used to develop the desktop application as it enables tight multimedia integration which makes it suitable for applications consisting of multimedia, animation and HD video playback. Dynamic DBMS was used with SignalR software library for communication across a cluster of devices.

The key modules that were developed as a part of entire solution are:

Cowbellpedia Web Application

Since the game show was supposed to be broadcasted on a national TV channel, thousands of registrations were expected in each season. Hundreds of schools used to nominate their best students to participate in the quiz show. The Cowbellpedia web application was developed to enable school registrations with the allocation of a login portal to each entry. The participants could access their accounts using the registration details at any point of time.

The scalable web app was built to always be available, perform flawlessly, retrieve the data quickly, respond in real-time and always has room for more functionalities. A candidate management system was integrated into the app to make it user-friendly and resourceful. The application was integrated with an offline test section where details and results for offline tests were displayed. The participants could take 16 levels of Junior as well as senior-level quizzes using the web application.

Cowbellpedia Mobile Application

The mobile app was meant for participants to understand the question pattern before they appear for the final round. It had two categories, Junior (for students in Junior Secondary Schools) and Senior (for students in Senior Secondary Schools). There are 13 levels, each having 3 stages (Beginner, Intermediate and Advanced). The app focuses on mathematics and questions are drawn from various subject areas such as Algebra, Geometry, Trigonometry, Statistics, etc.



Cowbellpedia Desktop Application

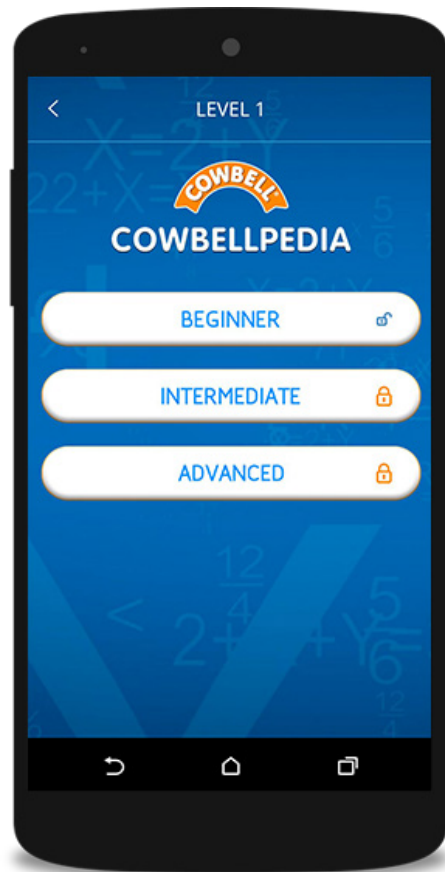
The desktop app was developed for live quiz show management. The application had different access roles which were named, the Question Manager, Presenter, Admin, Senior Admin, and Contestant. The application had four critical modules that were:

Admin panel: This helped manage contestants, grouping, episodes, question set, a question bank, complexity level, settings etc.

Host management panel: This was a real-time module consisting of a dashboard managing game, awarded talking-point, displayed answers to the questions and the points earned by a contestant.

Control room panel: This module was designed for quiz management, episodes management, show sequence management, presenter panel etc.

Biometric login panel: This module was built for secure log in to the devices by contestants, during quiz show.



A few additional features that were integrated into the applications were:

Audience screen: The featured allowed participants and audience members to view the questions on a separate panel of the screen. This helped in elevating viewer engagement.

Automated grouping: The application enabled a feature that could divide participants into unbiased automated groups for the next level.

Complexity level: The feature helped in defining the complexity level of the questions and categorizing them into junior and senior levels for suitable participants.

The Impact

Promasidor's Cowbellpedia Mathematics Television Quiz Show initiative has earned NIPR the "Best Company in Education Award" at the 2016 Lagos PR Industry Gala and Awards (LaPRIGA). The quiz show is aired on thirteen television channels across the country and has received a remarkable response. The National Examination Council (NECO) has reiterated its commitment towards ensuring continuous success of the Cowbellpedia Secondary School Mathematics TV Quiz show. The number of registrations have increased by 57% to after development of the web application which has simplified the registration process. Development of the desktop application for quiz management has also helped enhance audience engagement and increased the viewer base by 37%.



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Technology Stack













- AngularJS
- HTML
- jQuery & CSS3
- ASP.Net MVC 4.0
- C#
- .Net 4.5
- SOA
- Windows Presentation Foundation (WPF)

About Daffodil

Daffodil Software is a software engineering partner to 100+ organizations across the globe and has been helping them in making their software products more robust, teams more productive and processes more efficient. Our ability to look beyond technologies to deliver innovative solutions with scale and speed has been lauded by our clients as well as the tech community worldwide.

Since our inception, we have invested in organic growth; building on our engineering capabilities, organizational processes, and culture required to deliver a truly collaborative ecosystem for solving technology challenges. At the core of Daffodil lies a culture rooted in innovation, learning and a result-oriented mindset.

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