PROJECT DOCUMENT: AURORA

Objective:
Aurora is the project name of a mobile application designed to make financial transactions between two or more people fun, fast, and easy.

Concept:
In its current form, Aurora consists of four parts: A downloadable application for mobile platforms; a game library designed for multiple local users; an electronic funds transfer system for transactions between those users; and an internet portal and database to track transactions and customize the mobile experience.

Mobile Application:
The mobile interface is fairly simple. After a bill is received and paid, rather than trying to divide the total equally, collect the money from a group, or keep track of who owes what (at best an awkward and painful process made more difficult by the proliferation of mobile payment systems in lieu of cash and credit cards), the user will be able to instead:

1. Select Aurora from the menu in their phone.
2. Enter the total amount of the bill, check, or receipt upon prompt.
3. Give a description or take a picture of the location.
4. Select the members of the group with whom the bill is to be divided from your contacts list, adding additional contacts if necessary.
5. Adjust the 'Split', if necessary, and decide whether or not to enter the game mode and compete as a group to assign the split via gameplay.
6. Verify the total and exit Aurora.

Using Aurora, everything from gas money for that road trip you've been planning with the roommates to the cable and utilities bills that will be waiting for you when you get back— every split is just 10 seconds away.

And it's hassle free! Once assigned, splits will be confirmed by all parties via a password protected website, or can be disputed and sent back for arbitration if a discrepancy is found to exist. If a user fails to confirm the split and pay an amount, Aurora will automatically send reminders via text, e-mail, and voicemail—will even ban a delinquent user from the Aurora system—until the amount is paid in full. In other words, Aurora will get you your money… so you don't have to.

Game Library:
The game component of Aurora is a fun and exciting aspect of the offering, unique to anything else on the market. In Aurora's 'Play to Pay' system, multiple local users can decide to split bills or checks by competing against each other in real time. The games are designed to be quick, ranging from the simple—a game of Russian Roulette (i.e. a random selection system where there is only one loser)—to much more sophisticated, networked, or virtual reality games where the users are playing for either a free meal, or one of several successively smaller splits.

In the game mode, all kinds of unique and innovative interaction is possible, and the checkout line will become an event worth looking forward to.

1. **Roomates** can design avatars with attributes and weapons for a Fighting Game or FPS played over many successive matches.
2. **Colleagues** on a lunch break can play quick trivia games with topics ranging from sports and entertainment, to history and geography. They can test their knowledge of corporate history, or even little known facts about each other.
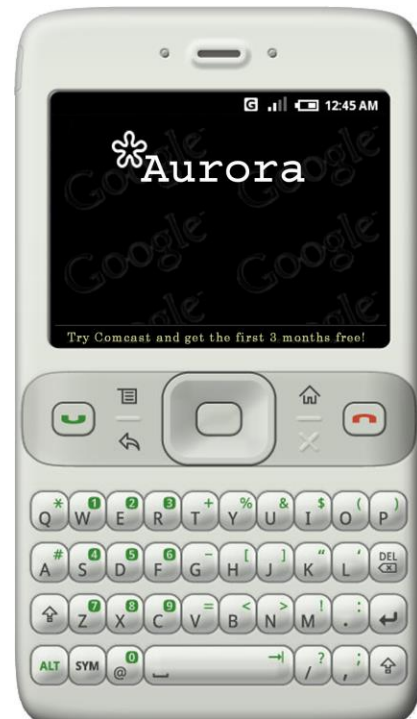
3. **Friends** can play a musical game like 'guitar hero' together, with sound from the phones combining to make the song... Or a karaoke game like 'American Idol', where they sing a few bars of an unfamiliar song back into the cell phone to lyrics appearing on their screen, and the group can play the song back via speaker afterwards to be anonymously scored by the 'judges' sitting around the table and choose a winner.

Electronic Funds Transfer System:
All Aurora users will transfer funds via secure electronic accounts which are tied to bank accounts (PayPal uses one such system). The accounts can allow parents or outside users limited access to account history and will give them the ability to pay into user accounts, clearing balances 'owed' for rent and utilities, for example, while not paying for concert tickets, food, or other charges split by the user. The accounts will also provide the user with the ability to keep track of outstanding and receivable amounts, monitor cash flows, and receive and pay bills electronically.

Users will be able to customize many different aspects of the Aurora interface to suit their needs, and 'Splits', a fundamental part of the Aurora application, will be no different. Conventional splits will occur in one of two ways:
1. **Even Split:** From the 'Split' screen, the default will be to divide the total amount of the bill or check evenly between all users.
2. **Adjusted Split:** Adjustments can be made using the sliders to reach a more fair or accurate distribution of the check and tip, the groceries, or even the rent. An arbitrary amount for each person can also be chosen.

In the game mode, users will have the opportunity to pit their knowledge, skill, luck, or reflexes against one another with splits assigned based on the results.
1. **Roulette:** From the 'Users' screen, the players will have the option of immediately playing for the total amount of the bill. To do so, they will select a 'Russian Roulette' style game in which the gameplay is such is such that only one 'loser' will pay the amount (i.e. In the example referenced below, 4th place pays $44).
2. **Adjusted Reward:** Rather than play for such high stakes, a more common scenario will involve users playing for the much lower adjusted splits, assigned in inverse order to their game ranking. In that case, after adjusting the amounts via the Split screen, they will select the icon to take them into the 'Game' screen, with user pictures removed in place of rank amount assignments. Rather than the winner of the game paying the lowest split at the table (second paying the second-lowest amount, and so on), in the adjusted reward game mode, the winner of the game will pay zero, and the rest of the table will equally cover the cost of the smallest split (i.e. in the example below, 1st place would not pay any part of the bill, 2nd would pay $12.33, or Bob's $10, and 1/3 of Tom's $7, and so on).

Internet Portal & Database:
The website will be an important final piece of the Aurora application, as a service for mobile and non-mobile users, a portal for advertisers and game developers, and a forum and toolkit for the mobile community.

While Aurora will be designed to be operated via a .mobi portal, a traditional website will provide both flexibility and safety, should problems arise. Also, users of non-compatible platforms will be forced to use the .com address to confirm SMS transactions on the website (after establishing an account, they could text '44 4 Pub' to Aurora from any SMS-enabled phone and return to the website to add 3 users and split the amount in arbitration).

Finally, all non-Google advertisers will use the website to upload, demographically target, track, and pay for advertisements; Game developers will upload new titles to the site, while tracking the popularity and revenue stream of existing ones; Forums will exist for community interaction and open source development.

The database meanwhile, will provide a tool to better understand and track purchasing patterns and social networks of the users. Not only will frequency and segmentation be established to limit unwanted or poorly targeted offerings, but a segmentation of the users themselves can be established so Aurora can be modified to meet their needs (i.e. brand evangelists signing up the most new users can be identified, and asked to participate in the development of improved iterations of Aurora software).

<u>Scenario:</u>
Dave and three of his coworkers are out for drinks at a pub. Rather than starting four tabs on four separate mobile devices, he elects to put everything on his phone, so they can settle up afterwards. Dave buys 5 drinks: two beers ($10), a shot for Bob ($8), a glass of wine for Sarah ($11), and a mixed drink for Tom ($5). The total is 34 dollars even, and he leaves a $10 tip.

Going into his phone, he opens the Aurora application, and a customizable voice greets him by name, asking for the total amount of the bill. Dave types 4 4 0 0 on his keypad and the voice reads forty-four dollars back to him in confirmation. Dave is then asked if his Google Earth location is correct, 'The Britannia Pub'. Dave has the option to confirm his location, enter a new location using the keypad and confirm, or take a fun picture to add to the transaction record for his coworkers. After one of these three options are selected, the 'Users' screen will open, with contacts ranked by split activity.

Here, the voice asks him who he is with, pre-selecting Bob and Sarah from Dave's contact list because their phone locations suggest that they are nearby. Tom isn't in Dave's contact list however, so Dave must ask him for his number and enter it manually. Tom is immediately sent a message with a link to download Aurora, if necessary (If wireless access is unavailable, Tom's phone does not support the application, or he does not have a phone with him, Dave will continue to split the bill using Tom's number. Tom will either confirm after setting up an account online, pick up the tab later in the week so Dave can enter it in Aurora and the charges can cancel out, or can pay in cash so Dave can cancel the outstanding charge).

As Tom is downloading, Dave is being asked to make any necessary adjustments to the split. A simple slider shows each user (Tom still has a phone number instead of a name) and the amount they owe. Default is $11, so he adjusts right, to $14; Bob's down one to $10; Sarah's over one to $13; and Tom's would already be automatically left at $7. Selecting the game button, Dave is prompted to select from a small selection of titles with his coworkers, and review the adjusted rewards: $1^{st} = \$0$, $2^{nd} = \$12.33$, $3^{rd} = 15.33$, $4^{th} = \$16.34$.

Once Dave selects a title, his coworkers will all be sent an invitation to join him in Aurora. Upon opening the application, they will have two choices: To keep their split and transfer that amount to Dave electronically, or Play to Pay for the assigned splits listed by rank. Should they opt out of the game mode, splits for remaining players will be adjusted accordingly. Once all users have made the selection, the game will begin. At the conclusion of the game, users will get their ranking and assigned amount owed. This is the amount that they must confirm via password on the Aurora site for a transaction to take place. They then can exit the game.

<u>Revenue:</u>
Like Aurora, the Android platform it runs on will be a totally free, open source operating system, developed by Google as a vehicle to establish a foothold in what is the last great frontier in advertising—mobile media.

Aurora will be a natural progression of that goal, providing advertisers the ability to deliver more relevant and focused messaging to users, with less clutter and commercialization than existing mobile business models. Messaging, like the revenue associated with it, will come in many forms, including:

1. **Targeted Banner Ads and Notices:** Several of the screens in Aurora will contain banner advertisements or messages via a scrollbar. These will notify you if a restaurant you've been to is having a special, if a movie you've split tickets at is having a screening, or if event reservations are opening at your favorite sports arena or concert hall. You can get a notice that a bar only two blocks away has just announced the headliner, along with the drink specials that are available until 12—Or an invitation to try a different broadband internet provider at an exciting new rate, just as easily.

2. **Requested Notices:** Via the website, users will also be able to sign up for specific reminders, like when the local pizza place is having it's big Fourth of July Special, or when your favorite game store receives special releases of new titles. Rather than being accessible through an Aurora screen, these notices will be sent directly via text messaging to one user, where they can be forwarded along to several of his friends.

3. **Sponsorship:** Long-term sponsorship opportunities are expected to come from financial service companies looking for inroads into the mobile market, or mobile bill pay operations seeking new accounts. Rotating sponsors can be local or national organizations that are targeted to the consumer, so that each Aurora interface is a reflection of user taste and preference—possibly even sponsors they will be able to select.

4. **Game Properties and Brand Integration:** With the addition of the game platform, Aurora offers the opportunity for advertisers to totally immerse the user in the brand experience. In the run-up to the release of the newest James Bond film, for example, Universal will have the ability to select a specific demographic from what is traditionally a hard-to-reach age group. They can then drive traffic to the movie's website and trailer via a rotating sponsorship and targeted banners, giving away Bond themed backgrounds via upload on the Aurora website. Targeted notices regarding movie locations and times can then be sent to users expressing interest by clicking through earlier messaging. To generate even more buzz and get people talking about the movie, they can release the voice of the actor for free download in the talkthroughs area, while sponsoring a 'Duel' game where players have to simultaneously 'draw' and 'shoot' their phones, just like the title sequence in the Bond franchise.

Aurora will represent a leap forward in what advertising is and ought to be, and there is tremendous revenue potential at every stage in development. Initially, more targeted advertising will be supplanted with Google's Adsense as Aurora builds a user base and eventually fills that role. Once developed, the ability to recognize and anticipate purchase behavior will bring the application into a class of its own.

Conclusion:
At it's core, Aurora is a go-anywhere way to make check splitting more fun, debt-collecting faster, and managing money easier than ever before. It promises to change the way that people interact in a very basic way, transforming one of the biggest headaches of any outing with friends into one of the most enjoyable. As an Android Challenge project, Aurora has an advantage in that it will actually *add* value to Google's core business on the platform, all while showcasing the advantages of location identification in Google Earth, the social networking/contact list integration on the platform, and the incredible possibilities that are available in networked mobile gaming.

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