

EXECUTIVE SUMMARY

CEREBRATE is a business originated in Almaty, Kazakhstan.

Our goal is to increase the chances of recovery, making the lives of millions better, easier, and happier. The app offers:



1. The environment which connects a patient with a caregiver and a doctor;
2. Cognitive and intellectual skills restoration via minigames;
3. A supportive community for those who feel left alone;

The business is oriented around **personalization of recovery** through data analysis, **comfortability of use** for everyone, and **building a supportive community** of those affected by these conditions.

PROBLEM: Stroke annually around the world hits ¹²³

15M
VICTIMS

5M
DEATHS

5M
DISABLED

MILLIONS OF
CAREGIVERS
who must provide full-time care

Recovery is **hard**

- 1 in 3 experience aphasia, a condition that affects the ability to speak, write, and understand speech, both verbal and written;
- 1 in 3 suffer from depression or other emotional impacts, which was hard to deal with ⁴.
- Recovery with healthcare professionals is often expensive or not possible due to the physical disabilities of patients.

Yet, recovery is **possible**

- Aphasia could be treated with various methods of puzzle-solving
- Online connection with medical professionals can make medical recovery easier

COMPANY DESCRIPTION

CEREBRATE is a social enterprise that will reinvent its benefits into business and stroke-treatment research. Our mission statement is

"To improve the life of post-stroke patients suffering from aphasia by making the re-learning process easier with a modern and affordable solution, that connects a patient with his/her caregiver and doctor."

The app was created by "The Wave" team, consisting of 4 people with essential roles in the project development:



The team was formed under Amelie's suggestion. The main source of our inspiration was the fact that Kibriyanur's grandmother suffered from a stroke. Her struggles made our team realize that our app is not only lines of code on the monitor, but a possible help and support for millions of people. The more research we did, the more we started to visualize it as a viable startup, that can truly improve the lives of many.

Currently, we are providing post-stroke patients and ones who are helping them to heal with a structured recovery program and online community to feel understood. In the immediate future, our team aims to reach the national market, by proposing our app to local medical institutions and medical insurance companies.

¹ Johnson, W., Onuma, O., Owolabi, M., & Sachdev, S. (2016). Stroke: a global response is needed. *Bulletin of the World Health Organization*, 94(9), 634-634A. <https://doi.org/10.2471/blt.16.181636>

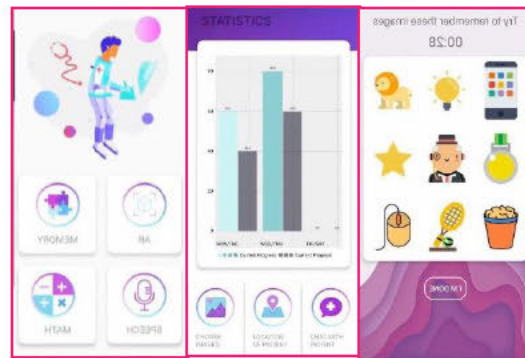
² World Health Organization - Eastern Mediterranean Region. (n.d.). Stroke, *Cerebrovascular accident*. Retrieved from <http://www.emro.who.int/health-topics/stroke-cerebrovascular-accident/index.html>

³ Stanford Hospital & Clinics - Stanford University Medical Center. (n.d.). *Effects of Stroke*. Retrieved from <https://web.archive.org/web/20090210050456/http://www.stanfordhospital.com/healthlib/atoz/cardiac/effects.html>

⁴ State of the nation. (2018). *Stroke statistics*. Retrieved from https://www.stroke.org.uk/sites/default/files/state_of_the_nation_2018.pdf

PRODUCT/SERVICES

The application was written using the Android Studio platform and Java. For storing user information, we used Firebase as a backend. The augmented reality feature was developed on Unity. The UI design was adjusted for the special needs of our users: we used neutral colors with a light background. Icons made in Adobe Illustrator are simple, yet understandable, so the patient would not have any difficulties while using the app.



MAIN FEATURES

CEREBRATE provides several paying options and will be available for both IOS and Android. The interface was made minimalistic, yet eye-catching for the most productive user experience. There are three types of users, who register accounts accordingly: caretaker/post-stroke patient, caregiver, and medical institution/doctor:

	Caretaker	Caregiver	Medical
Initial login	A short questionnaire for the patient's profile and diagnosis of aphasia level	A short questionnaire for the patient's profile. Emails of the doctor, and caretaker to connect accounts	A short questionnaire for the patient's profile.
Main interface	Dashboard which consists of <ul style="list-style-type: none"> • a progress bar, • mood indicator, • sleep longevity, • pill-taking monitoring; • emergency button to notify the caregiver and the clinic in urgent situations with GPS location; • chat with the doctor and caregiver to support the communicational needs of the caretaker. 	The dashboard of the caretaker, including chat	The dashboard of the caretaker. In future: data aggregation on the group of patients
Features	The process of recovery itself is based on certain mini-games: <ul style="list-style-type: none"> • Simple math: the patient solves basic mathematical problems; • Speech: depending on the user's level of aphasia, he or she is asked to repeat different tongue-twisters or basic words; • Exercises: the caretaker is provided with the visual and verbal description of certain physical tasks; • Photo Identification: the user is asked to choose whether he or she recognizes the person on the picture or not (pictures are uploaded by the caretaker); • Augmented Reality: a mini-game for developing spatial thinking. 	Medical resources tab is provided to ensure that caregiver does not feel lost in the abundance of the information	Chat with clients is supported by medical organizations

FUTURE UPDATES

CEREBRATE is a fully functioning app. Yet, we plan to extend its features and add

- "Community" feature, so users can share their experience and connect with others;
- Data/statistics aggregation for medical workers/institutions/research bodies who can be interested in post-stroke research;
- Update recovery techniques via non-stop consultation with medical institutions;
- Make the app compatible with IOS and Android devices;

MARKET ANALYSIS

There are about 20 healthcare-oriented apps from Kazakhstani developers⁵, none of which provides post-stroke recovery service, which creates an opportunistic environment to launch our app in the country. Yet, key limitations are (1) habits and practices of our key users, caretakers, due to their reluctance to purchase digital products, and (2) potential issues with reaching the global market due to hardships in maintaining an initial customer base in the local market.

To overcome possible issues, we diagnosed with **CEREBRATE**'s strengths and weaknesses. Current weaknesses are solvable and do not lower the uniqueness factor of our app. After some additional developments, we would be able to successfully perform on the market.

	CEREBRATE	Competitors
Strengths	<ul style="list-style-type: none"> - Cooperation with caregivers and medical institutions; - Understandable interface with a dashboard; - Broadened functionality 	<ul style="list-style-type: none"> - Already launched on the market; - Available on most of the platforms
Weaknesses	<ul style="list-style-type: none"> - Compatible only with Android devices; - Has 2 language options; - Cannot directly send messages to a medical emergency; - Does not have governmental database support; 	<ul style="list-style-type: none"> - Have limited functionality (e.g. only mini-games or only chat with a medical doctor); - Are not oriented to provide post-stroke recovery;

Widening our landscape to the international market, we shortlisted the number of apps with similar features. The current market of both health and non-health related game apps does not offer the full functionality of **CEREBRATE**, which makes our offer unique on the market:

	CEREBRATE	7 Minute Workout Challenge	Elevate	Lumosity	Language Therapy 4-in-1
Free Version	✓	-	✓	✓	-
Aphasia Treatment	✓	-	✓	✓	✓
Caregiver and Caretaker Options	✓	-	-	-	-
Augmented Reality	✓	-	-	-	-
Cognitive Functions Treatment	✓	✓	✓	✓	✓
Gamification and Progress Record	✓	-	✓	✓	-

Initially, we planned to make an app, which focused on mini-games rather than providing a customer with a full post-stroke recovery service. Understanding that the market lacks such products, we shifted to more complex functionality.

CUSTOMER RESEARCH

Developing our customer personas, we relied on the survey results (described in "Strategy and Implementation"), real stroke survivors' interviews, and suggestions from speed pitch sessions. Overall, we have seen three characters, one for each type of user, based on real-life people.

Name	Age	Role	Frustration	How CEREBRATE can help
Serik	73	Caretaker	Suffered from a stroke a year ago, developed aphasia and minor memory loss. He is not motivated in his recovery due to depression and believes that nothing will help.	Finds app entertaining and simple to use. Gets distracted from his condition by games. On top, the app's language and progress encourage him and lift his spirit.
Aigerim	68	Caregiver	Serik's wife, wants her husband to recover. Unable to motivate him to regularly visit his doctor.	Monitors her husband's activities while doing domestic work. She especially enjoys the community feature, because she always knows that there are people who can support and help her.
Sara	45	Medical professional	Does not have a full picture of Serik's progress and detailed medical history	Gets continuous update on Serik's progress, thus able to offer more suitable medical help. Aggregated data from other patients helps her understand which tactics are better.

⁵ РГП на ПХВ "Республиканский центр электронного здравоохранения" Министерство Здравоохранения Республики Казахстан. (n.d.). *Казахстанские приложения в здравоохранении*. Retrieved from <http://ezdrav.kz/files/applic.pdf>

STRATEGY & IMPLEMENTATION

BRANDING The name of the app "Cerebrate" is a combination of worlds "celebrate" and "cerebrum", which is the core part of the brain. Assembling these words indicates that our app is all about the celebration of each step that a patient makes in his or her recovery.



REACHING TARGET USERS We used the AARRR Framework as a backbone of our marketing strategy:

Acquisition	Activation	Retention	Referral	Revenue
<ol style="list-style-type: none"> Display ad: direct advertising via Google display networks and Yandex ad network. The click will lead directly to the app in the Google Play Market or App store Search ad via Google or Yandex, leading to app upload. Key search words will be connected with aphasia and stroke Brand ambassadorship and recommendations from doctors/medical institutions to caregivers and caretakers Info leaflets at health institutions 	<ul style="list-style-type: none"> The detailed step-by-step description on Google Play market, App store In-app tutorials to ease registration and guide the users Push notifications with task reminders will be sent; Instagram account for questions and feedback Live chat for user problems/questions/feedback 	Email seeding and newsletter with the patient's overall progress to retain customers.	10% discount for 1 friend joining the app	Based on the subscription model

INITIAL FEEDBACK To evaluate the impact of Cerebrate, we surveyed 198 people:

- 53% had someone close who suffered from a stroke
- 67% claimed some measures for post-stroke recovery were taken for their close ones
- 71.6% answered that they would actively use this app if needed, and 21% answered that they would use the app on a non-regular basis.

Top 3 features highlighted by the respondents were aphasia treatment (71.4%), emergency help button (69%), and memory restoration exercises (65.5%). Half of the respondents would pay either less than \$5 or an amount between \$5-10 for the proposed app.

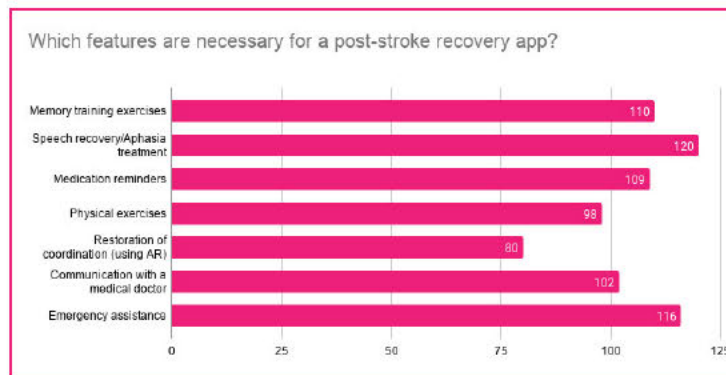


Figure 1. Survey result. Which features are necessary for a post-stroke recovery app?

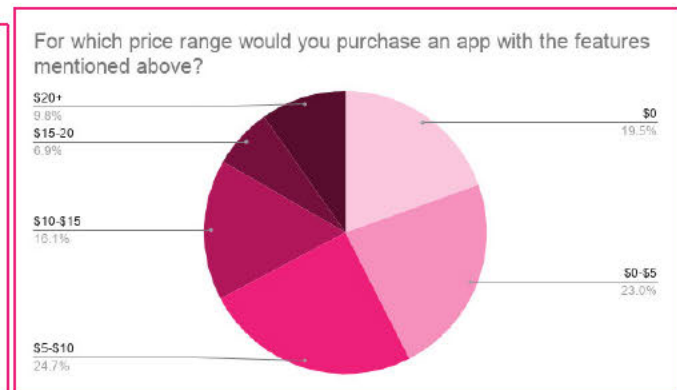


Figure 2. Survey result. For which price range would you purchase an app?

PRICING & DISTRIBUTION Rather than featuring ads in our app, we chose the subscription fee model with basic features being free of charge.

	Caretaker	Caregiver	Medical institutions
Basic/free (no AR, limited pill-taking notifications max 4 medicines)	Free	Free	-
Paid	\$7 per year	\$7 per year	\$12 per month \$80 per year

Google Ads' pricing varies depending on the budget, so we are planning to start with \$100 initially. The distribution of the app costs \$99/year on App Store and \$25 on the Play Market. We will maintain the initial budget by proposing our final product to the projects department of the Autonomous Educational Organization of Nazarbayev Intellectual schools, as most of our team are students of this network, we expect high support.

EMPLOYMENT While initially app will work based on the team's resources, after gaining the first 100 users we would require hotline assistant, 2 software developers, 1 marketer, and UX/UI designer.

FINANCIAL PLAN & PROJECTIONS

STARTUP CAPITAL Due to affiliation with Nazarbayev Intellectual schools' network, we expect to receive initial funding of \$470 from them. Additionally, our team contributed personal savings to advertise the app. After gaining the first 2000 users (around a year), we hope to gain support from post-stroke rehabilitation centers of Almaty, Health insurance companies, and research centers.

REVENUE As 71% percent of conducted survey respondents (mentioned in the "Initial feedback" sub-section) answered that they would use our app regularly, and 21% rarely, we expect a growth of 200–300 users per month after gaining initial auditory. We predict that 30% of users would purchase the full version for caretakers/caregiver and 15% of customers to use medical institution subscription. An additional source of revenue is an advertisement. However, we would not put them in the app itself, and send them via email to our customers. We will charge \$1 per advertisement in the first year, increasing it by \$5 for the following two years.

OPERATING COSTS In addition to capital cost and rent, we would purchase subscriptions for app developing programs, such as Xcode. As engagement of the app would raise over time, demand for our work would increase. To maintain the high efficiency of our app in such conditions, our team would hire additional staff (mentioned in the Employment section).

	Year 1	Year 2	Year 3	Total
Startup capital				
Team's personal savings	\$80.00	\$200.00	\$1,000.00	\$1,280.00
AEO "Nazarbayev Intellectual schools"	\$470.00	\$0.00	\$0.00	\$470.00
Local post-stroke rehabilitation centers (e.g. "Aspasia")	\$0.00	\$1,000.00	\$3,000.00	\$4,000.00
Private insurance companies (e.g. "Nomad Life")	\$0.00	\$0.00	\$2,000.00	\$2,000.00
Medical research centers, that specialize in post-stroke recovery	\$0.00	\$0.00	\$2,000.00	\$2,000.00
Annual total	\$550.00	\$1,200.00	\$8,000.00	\$9,750.00
Revenue				
Target customer population	2000	5000	10000	17000
App costs (free version)	\$0.00	\$0.00	\$0.00	\$0.00
App costs (paid version for caregivers and caretakers)	\$4,666.67	\$11,666.67	\$23,333.33	\$39,666.67
In-app purchases (for medical institutions)	\$4,000.00	\$18,000.00	\$36,000.00	\$58,000.00
Advertising sales (via e-mail notifications)	\$1,000.00	\$5,000.00	\$10,000.00	\$16,000.00
Annual total	\$11,666.67	\$39,666.67	\$79,333.33	\$130,666.67
Operating costs				
Capital cost (equipment)	\$363.00	\$780.00	\$2,100.00	\$3,243.00
Software (e.g. Xcode)	\$330.00	\$500.00	\$500.00	\$1,330.00
Service fees	\$480.00	\$1,200.00	\$3,000.00	\$4,680.00
Registration for Apple developers & Google developers	\$200.00	\$200.00	\$200.00	\$600.00
App store fees (for hosting)	\$124.00	\$99.00	\$99.00	\$322.00
Marketing & advertising (Google Ads)	\$1,200.00	\$6,000.00	\$12,000.00	\$19,200.00
Mobile developer salary	\$1,200.00	\$5,760.00	\$8,640.00	\$15,600.00
Accountant salary	\$0.00	\$2,376.00	\$4,752.00	\$7,128.00
Project manager salary	\$1,200.00	\$5,760.00	\$8,640.00	\$15,600.00
Dispatcher salary	\$1,200.00	\$1,800.00	\$2,700.00	\$5,700.00
Designers salary	\$0.00	\$2,250.00	\$3,375.00	\$5,625.00
Rental costs (Internet connection, office, cleaning etc.)	\$480.00	\$1,000.00	\$2,880.00	\$4,360.00
Annual total	\$6,777.00	\$27,725.00	\$48,886.00	\$83,388.00
Income/Profit	\$5,439.67	\$13,141.67	\$38,447.33	\$57,028.67