A web-based laboratory for computational social science

Ceyhun Karbeyaz, Alan Mislove, Brian Keegan, Waleed Meleis, David Lazer

Abstract

We developed a web-based experimental behavioral laboratory called Volunteer Science to enable researchers to quickly design and deploy behavioral experiments while recruiting participants from a substantially larger subject pool of any active Facebook user. This platform enables us to conduct behavioral experiments involving hundreds of participants while supporting synchronous and client-side interactions while using commodity web service platforms.

Background

➢A great deal of human behavioral research is done "brick and mortar" laboratories in universities.

➢The Internet offers a way to recruit a massive number of subjects, and has the potential to transform behavioral research. Previous efforts include [1], [2] and [3] but none was designed to handle a large number of subjects for an extended period of time.

Aim of the Project

➢Volunteer Science is developed as a response to the increasing need in online social experiments by letting researchers to better observe the outcomes of collective behavior.

➢For the researchers' side, Volunteer Science lets them to conduct experiments over individuals or participants as groups. Hence it forms a good environment to investigate individual-group behavior and collective outcomes.
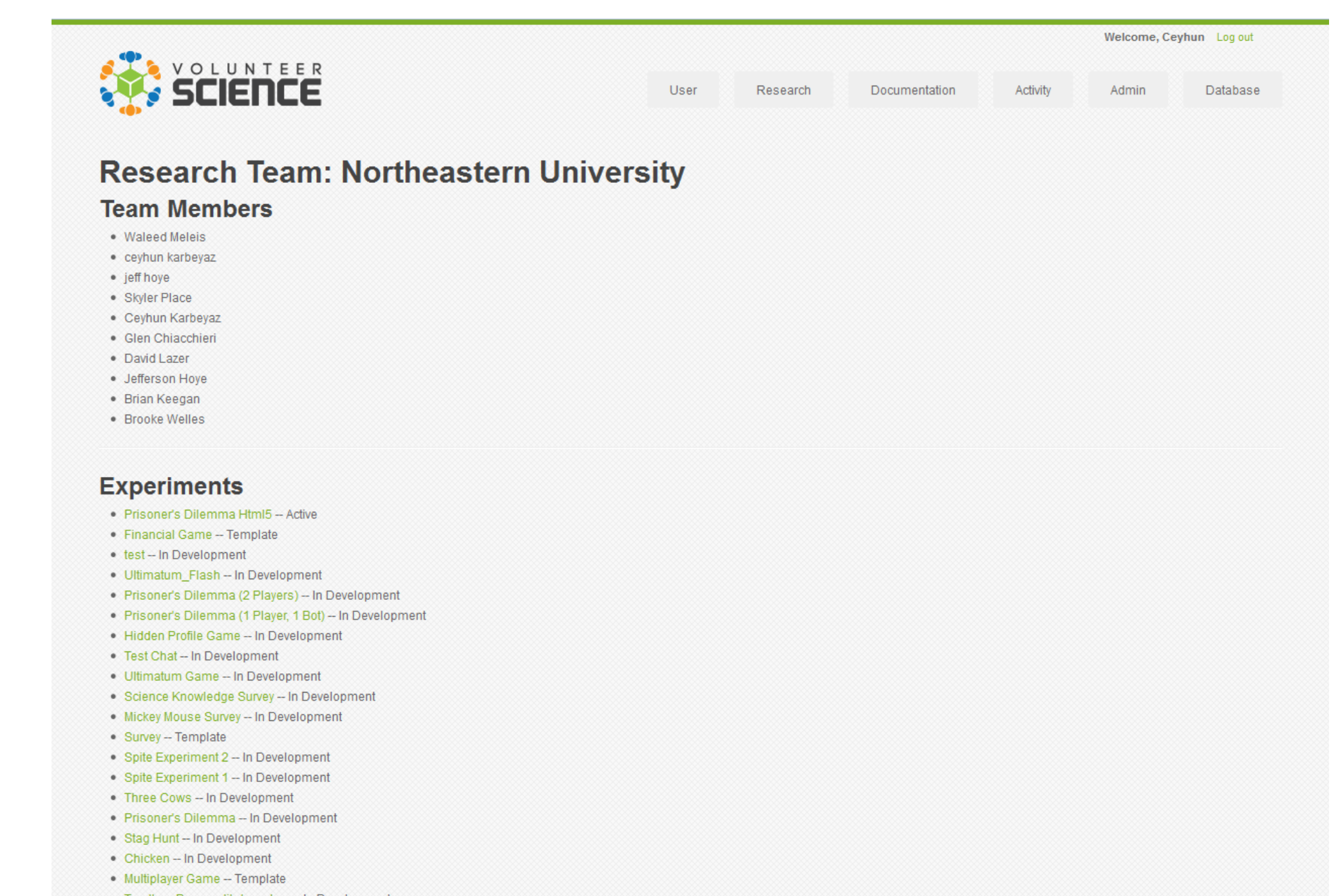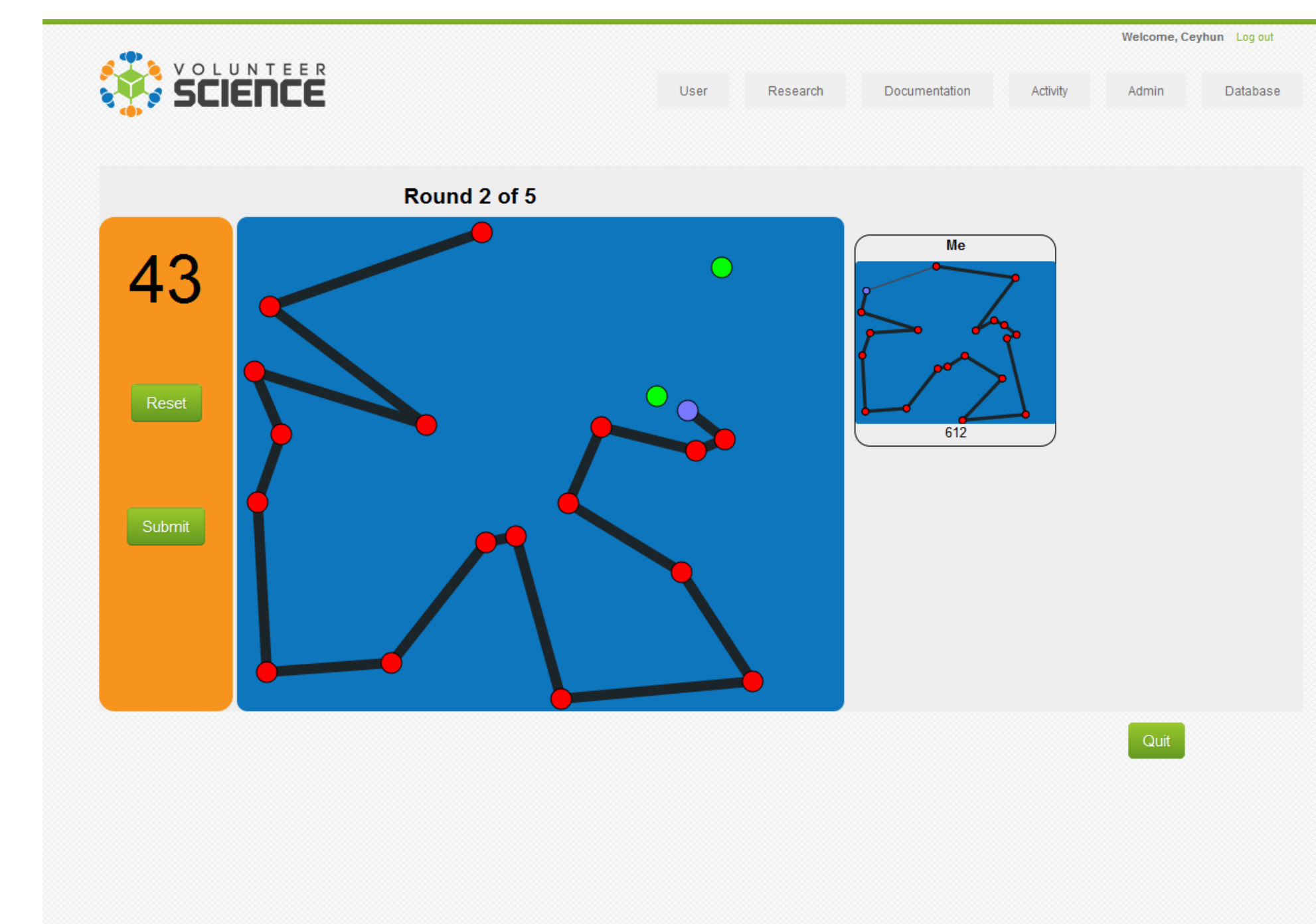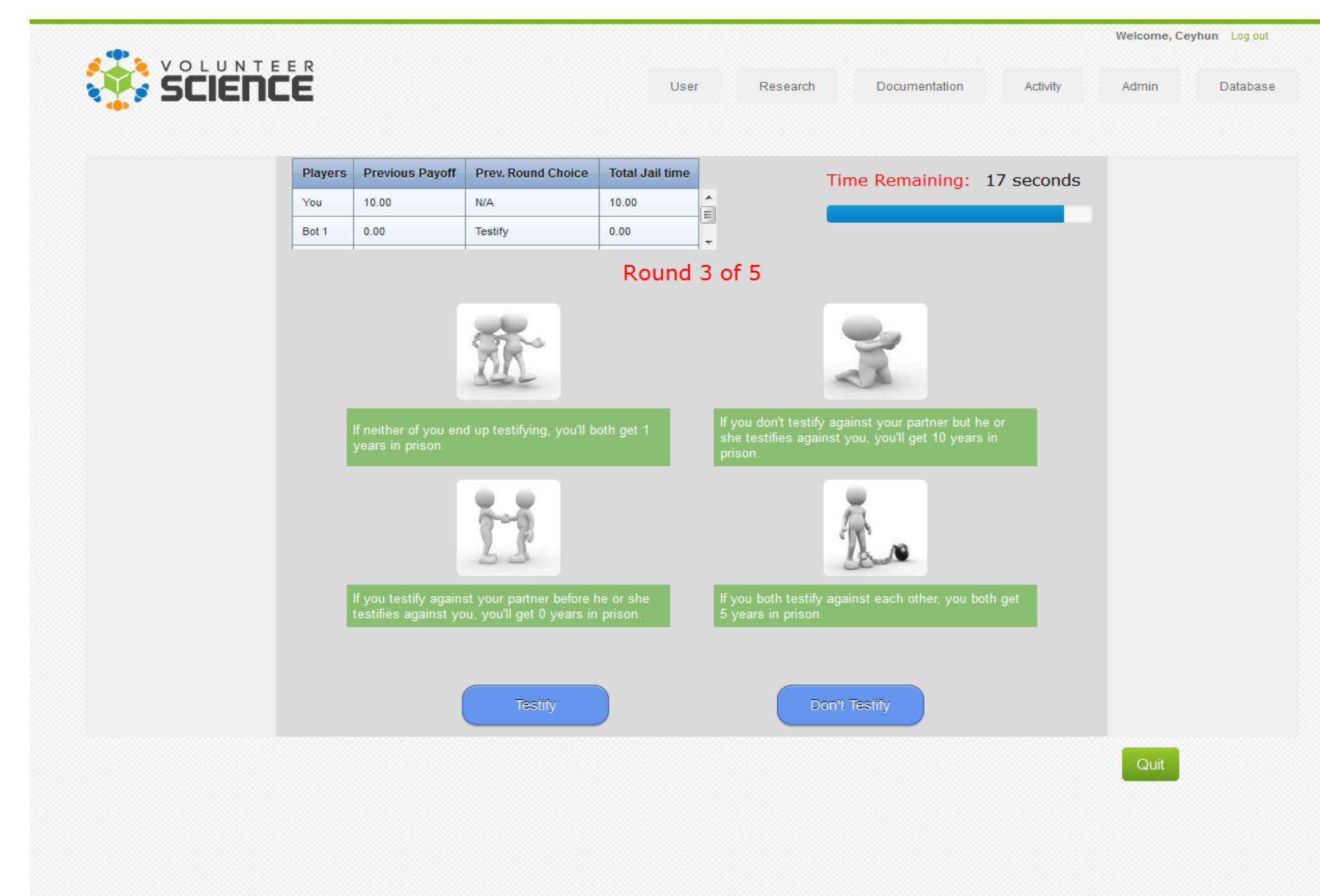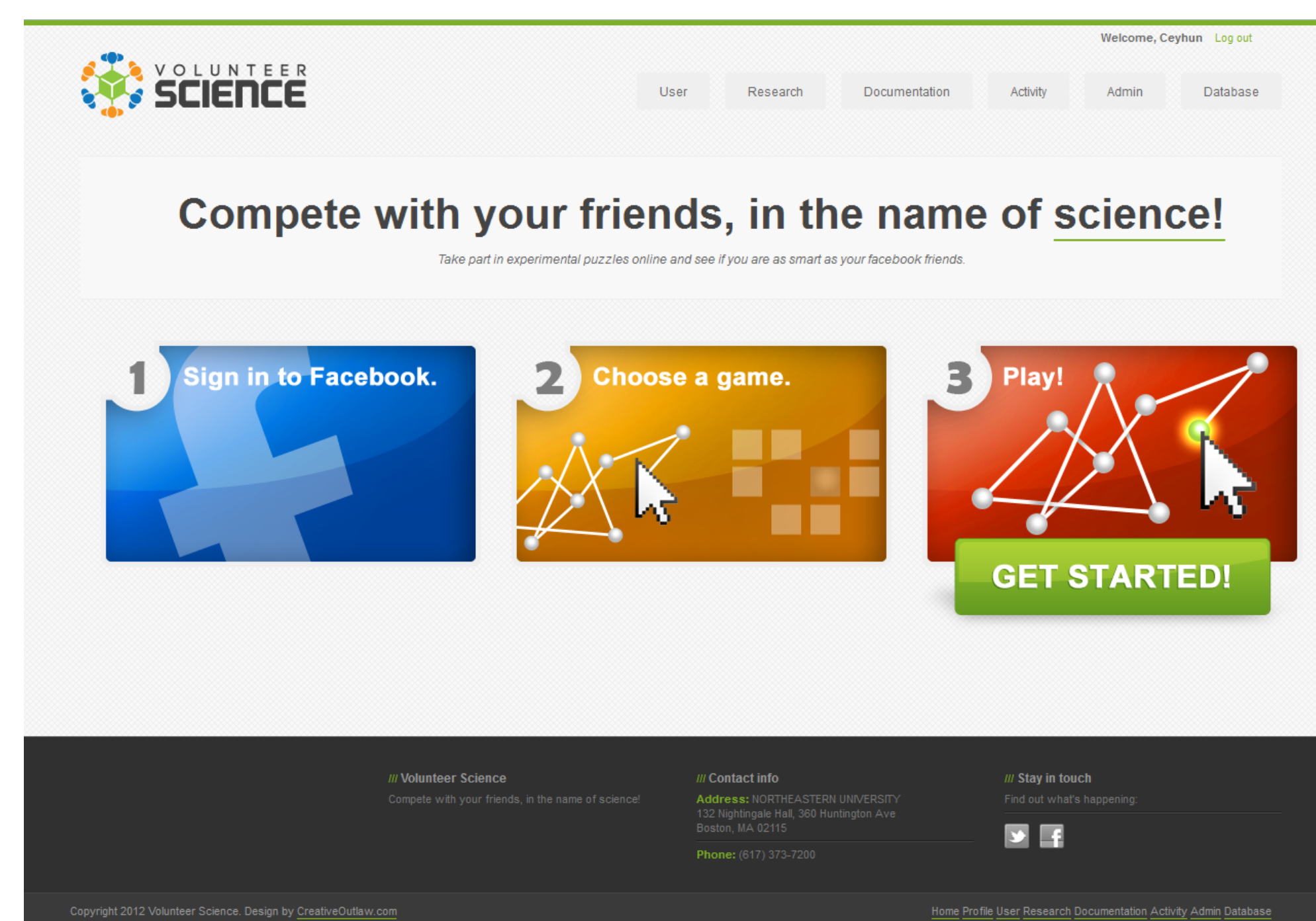
Framework and Data Collection

➢Experiments that are conducted by making use of python based Django Web Development Framework [4].
➢The system makes use of Facebook for collecting demographic data from its users.
➢There are three types of users in the system: Participants, researchers and administrator.
➢Researchers have their own management interface within the system where they are allowed to create, modify experiments and collect conducted experiments' outcome data as XML files from the system as long as they are assigned as principal investigator to a research group.
➢Participants are only let to attend to experiments from their own interface as it is shown at top right figures.

Conclusion

Volunteer Science experimental web environment is designed to help its users who have limited knowledge about the computer technology but want to conduct computer based experiments easily for research purposes. System is currently letting its users to add, and modify new experiments easily. In the near future, the platform is planned to make use of environments like PayPal or Mechanical Turk for attracting, managing and compensating users according to their efforts in participated experiments.

References

[1] D. Mutz. Time-sharing experiments for the social sciences (TESS). National Science Foundation Award #0094964, 2001.
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[4] Django. http://www.djangoproject.com/ (2014).