# Class Activity

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| Title | Privacy by Design Card Game |
| Subject | Ethics; Computer Science Education; Information Science Education; Mobile Application Development |
| Author | Katie Shilton, Adam Porter, Susan Winter, Donal Heidenblad |
| Grade level | Undergraduate students, Graduate students |
| Time duration | 90 – 100 minutes |
| Overview | Educational role-playing card game in which students work in teams to make decisions about data collection for a mobile application. The game helps them consider and experience the ethical consequences of their decisions. Can be played in person or online. |
| Objective | Understand ethical issues in mobile data collection and sharing; weigh ethical principles against technical and market realities and create a workable data policy; experience and analyze the consequences of ethical decision-making. |
| Materials | Card Game Rules, Board, Event Cards, Resource Tokens, Policy Decision Chips OR access to the online version. |
| Activities and procedures | Instructors prepare for the activity by assigning background reading and distributing the game rules.  Students play game during a class session or as homework. Students will need 90 – 100 minutes.  Instructor concludes activity with discussion of student experiences and reflection on ethical challenges in design. |

## Overview

This lesson plan describes how to roleplay ethical challenges in technology development using the Privacy by Design (PbD) Card Game. Roleplay enables students to learn how ethical challenges are embedded in development work, and encourages students to master consensus decision-making around ethical dilemmas.

In the PbD Game, students pick and assume the roles of project manager, software developer, and user experience engineer. As a team, they must decide on a privacy policy for a fictional (but plausible) mobile health application. A board simulates the steps in creating a data collection and sharing policy. The board prompts the teams to decide what data they will collect for the application and who they will share the data with. During the course of the game, event cards introduce **values levers**: internal and external forces that encourage reflection on data collection decisions and expose students to the consequences of their policies.

We have created both an online version and offline version of the game, and all necessary materials, including printable game materials, readings, questions, and files are provided on this site. Neither instructors nor students require prior training in ethical theory or mobile development. The game is intended as an introduction to the ethical consequences of developer design practices in the context of mobile app development. We hope it will spark deeper classroom conversations about the power and politics of technology design, as well as supply students with practice negotiating social issues alongside technical ones.

## Background

The Privacy by Design (PbD) Card Game is the result of NSF-funded research grant SES-1449351 CCE STEM: Finding Practices that Cultivate Ethical Computing in Mobile and Wearable Application Research and Design. Principle Investigators Katie Shilton, Susan Winter and Adam Porter at the University of Maryland first studied mobile developer forums to discover common values levers: factors that encourage real-world developers’ discussion and action on ethical challenges. We then used these findings to shape the game. Instructors interested in additional background information on the research, including complimentary papers on privacy discussions in mobile developer forums, should visit the [Ethics and Values In Design Lab](https://evidlab.umd.edu/) website to learn more.

## Activity Objectives

* Understand ethical issues in mobile application design
* Analyze the consequences of privacy violations for individuals and businesses
* Create a policy that balances design team and user interests

## Requirements

* Online
  + 100 minutes of time
  + 1 computer with internet browsers per student
  + Stable internet connection
* Offline
  + 100 minutes of time
  + Printed board game materials (board, event cards, resource tokens, policy decision chips)
  + PbD Card Game Rules

## Procedure

1. Preparatory:
   1. Assigned Readings
      1. PbD Card Game Rules
      2. Bort, Julie. “Programmers Are Having a Huge Discussion about the Unethical and Illegal Things They’ve Been Asked to Do.” Business Insider. Accessed November 3, 2017.<http://www.businessinsider.com/programmers-confess-unethical-illegal-tasks-asked-of-them-2016-11>.
      3. Pangburn, D. J., D. J. Pangburn, and D. J. Pangburn. “Even This Data Guru Is Creeped Out By What Anonymous Location Data Reveals About Us.” Fast Company, September 26, 2017. <https://www.fastcompany.com/3068846/how-your-location-data-identifies-you-gilad-lotan-privacy>.
2. Initial-Session:
   1. Game Materials
   2. Log-in or play offline game
3. Final Session
   1. Finish game
   2. Debrief

## Activity Instructions for Instructors

Preparatory

Prior to playing the game, we recommend assigning the following suggested readings to introduce participants to privacy and ethical issues in application design. We also recommend introducing the participants to the Card Game Rules. Suggested prior reading includes:

* Card Game Rules: introduces the scenario, the design team role sheet, and game instructions
* [Julie Bort’s article](http://www.businessinsider.com/programmers-confess-unethical-illegal-tasks-asked-of-them-2016-11): discusses programmers recounting unethical & illegal activities they participated in
* [D.J. Pangburn’s article](https://www.fastcompany.com/3068846/how-your-location-data-identifies-you-gilad-lotan-privacy): discusses data scientists voicing concerns on anonymous location data uses

The 100 minutes dedicated to the activity does not account for the required reading so we recommend assigning the articles prior and outside of the designated class sessions.

Game Play

If the game is to be played in class, ensure classroom computers are on or advise the students to turn on their personal laptops prior to the start of class. For the board game, ensure all materials are printed and distributed across the room. At the start of class, instructors should provide a brief overview of the activity and discuss expectations for student participation and grading, if relevant.

If the game is assigned as homework, students should be given information about their teams and should coordinate a time to meet in person or video conference to play the game.

Following game completion or post-test completion, instructors are encouraged to facilitate a broad discussion with students. Discussion questions can include:

* Are you happy with your privacy policy?
* Please describe how your team made collection and sharing decisions. Did everyone agree?
* How did your collection and sharing decisions impact business goals? How did your collection and sharing decisions impact user privacy?
* How did your role in the company affect the collection and sharing decisions you argued for?
* What benefits and harms are linked to design decisions? Policy decisions?
* If you played again, would you change your collection and sharing decisions following this discussion?