**Brief**

For the first part of the project you will have to analyze a variety of physics games, both new and old, and pin-point what physics concepts can be turned into a fun gameplay mechanics and how to do it. For this topic you should both search for reference articles on the internet as well as perform analyses on gameplay mechanics found in today’s games.

You should keep in mind why physics are such a fertile ground for gameplay: even when the game goals, controls and interface are simple and clear (so, **easy to learn**), the game remains **hard to master**, as the physics ensure that even small variations in input can lead to different results. Also, because the physics drive the action, the same exact game state doesn’t appear very often and can’t simply be learned by rote.

Based upon your conclusions, you will then start designing your own adversarial physics game and implement it for PC or a mobile platform of your choosing.

In your presentation of the theme you will be expected to provide the arguments leading you to your design choices and the conclusions of those arguments

**Constraints**

* Game should be set in a 2D environment
* Main mechanic from physics concepts (gravity, friction, time, buoyancy, etc.)
* Adversarial – game must be played between two players either in real time or in turns
* Played on a single device – either simultaneously (e.g. one player using a game controller and one using a keyboard) or by taking turns
* Symmetric gameplay – players should have the same actions available to them
* Simple and intuitive rules – players should be able to understand the rules of your game with a maximum of 2-3 small sentences of description

**Examples of games:**

* [OLO](http://www.ologame.com/)
* [Trials Fusion](https://www.youtube.com/watch?v=zICvEnDSHP8)
* [Rocket League](https://www.youtube.com/watch?v=xgg03Z_xOoE) (Note: this is a 3D game, but still a good example of physics being the core of what makes the gameplay good. It’s simple to know what you want the ball to do, but far from easy to hit it in that exact way. The additional unpredictability and time pressure caused by the other players also contributes.)
* [Pocket Tanks](https://www.youtube.com/watch?v=cKIY_VvFjY8)
* [World of Goo](https://www.youtube.com/watch?v=ZGfhB16dRH4)
* [Crayon Physics Deluxe](https://www.youtube.com/watch?v=q3ImgYHDlDA)
* [Angry Birds](https://en.wikipedia.org/wiki/Angry_Birds)
* [Cut the Rope](https://en.wikipedia.org/wiki/Cut_the_Rope)
* [Peggle](https://en.wikipedia.org/wiki/Peggle)