Block Intro - Task 02

Games Research and Development

Charlie Evans 18009251, Enis, Vason, Pax

Crime Data Visualisation In England

Game Design Document

Table of Contents

CONCEPT

BRIEF

Scientific data visualisation using games technology. Create a “serious game” using real-world scientific data.

HIGH CONCEPT

A visualisation of crime data across England’s counties demonstrated through an educational guessing game.

DETAILED CONCEPT

The prototype will feature two components: a turn-based guessing game and a data visualisation mode.

Gamification

Two players must pick a crime category and a year from which the data was recorded, and then must each select an English county on the map which they believe has the lowest number of crime cases. Whoever guesses the county with the lowest number of cases wins a point for that round. At the end of each round a fact is presented to the players that offers some factual insight on crime in one of the two counties that were guessed by players.

Visualisation

Players are given a series of buttons to press which correspond with each crime category, as well as a slider which can switch between the years in which the crime data was recorded. With these options, players can interact with and visualise any crime data they’d like to see visualised on the map of England. The number of cases for a crime category will determine the colour gradient of the county that is displayed on the map. Counties with a high number of cases are visualised with a redder colour and counties with a low number of cases are visualised with a greener colour.

RESEARCH

- Crime in England and Wales QMI - Office for National Statistics

- Data downloads | data.police.uk
- Bristol Crime and Safety Statistics | CrimeRate
- Crime outcomes in England and Wales 2021 to 2022 - GOV.UK

TARGET AUDIENCE AND IMPACT

AUDIENCE

The project is aimed towards educating a younger audience on crime in England. It is hoped that the project can bring more awareness around the dangers of crime.

IMPACT

The Player

Players will gain an awareness and more knowledge on public safety.

Scientists

Scientists could study the correlation between users' answers and actual crime data.

Government

The government can study the impression of people from user's answers and adapt to their management.

FEATURES AND MECHANICS

DATASET READER

To gather the crime data we needed a way of parsing a given spreadsheet of its data. A script was made that can take a spreadsheet and parse it column by column before continuing to the new row in the dataset. From this the data was able to be extracted and stored in a list. The benefit of pulling all the data at the start of the game and storing it in a list meant that we didn't have to rely on parsing the dataset later on, and instead could make use of LINQ queries to extract what we needed from the list when required.

API REQUESTER [ARCHIVED]

An API is a method of communication between multiple computer programs. They allow a user to hook into an API through its endpoint and request/query whatever data they are looking for. Before the project evolved to using crime data, we previously looked into using air quality data to measure the air pollution across England's cities. We used the API available for free at The World Air Quality Index Project's website https://aqicn.org/api/.

MAP CAMERA

Due to the scale of the map a interactive camera was needed so that the player is able to select each county on the map with ease. This new camera allows the player to traverse the camera across the map as well as providing the option to zoom in and out if they so desire.

COUNTY SELECTOR

Each county is a gameobject and contains a corresponding script containing its crime data. A county selector script was made that uses raycasting to check for whether the mouse is hovered over and has clicked a county gameobject. If a county is detected, an event is invoked that notifies that a county has been selected and what that county is.

CRIME SELECTOR

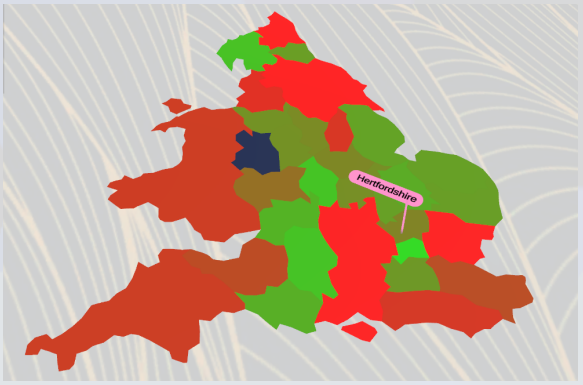
Different categories of crime can be selected via an interactive GUI through the use of buttons. This allows for a quick, interactive way for the player to switch between crime types with ease.

YEAR SELECTOR

The dataset features data from a variety of different years. By hooking up a slider with a custom script, moving the slider would output a value that would then request data from the stored dataset list where the year corresponds with the year slider output.

CRIME COLOUR GRADIENT

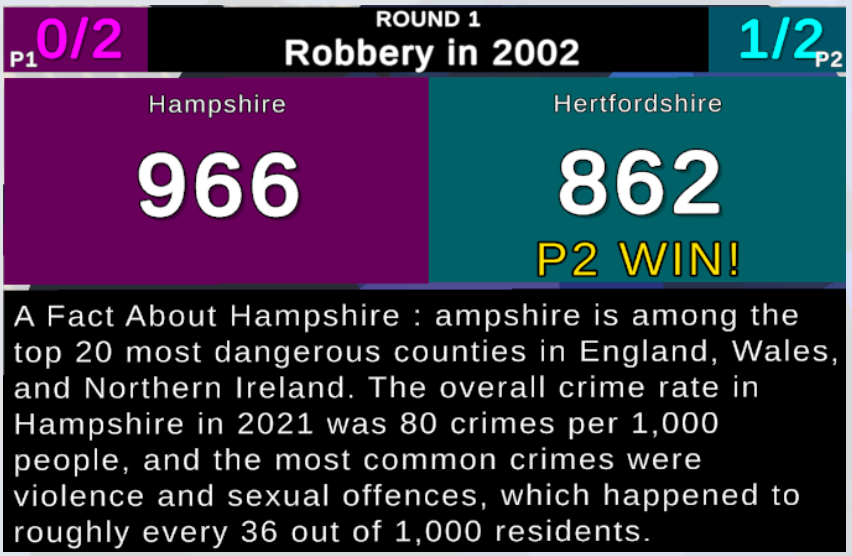
To visualise crime data across England we decided to implement a colour gradient. The number of cases of a crime in a county relative to the rest of the counties would determine the colour of the county, with redder areas conveying an area with a high amount of cases and greener areas showing areas with a lower number of cases. This mechanic



was at its best when used in the project's visualisation mode. The whole of England could be visualised at once and allow the player to quickly identify areas in which crime is more prevalent and the type of crime that is common in a particular county.

COUNTY CRIME FACTS

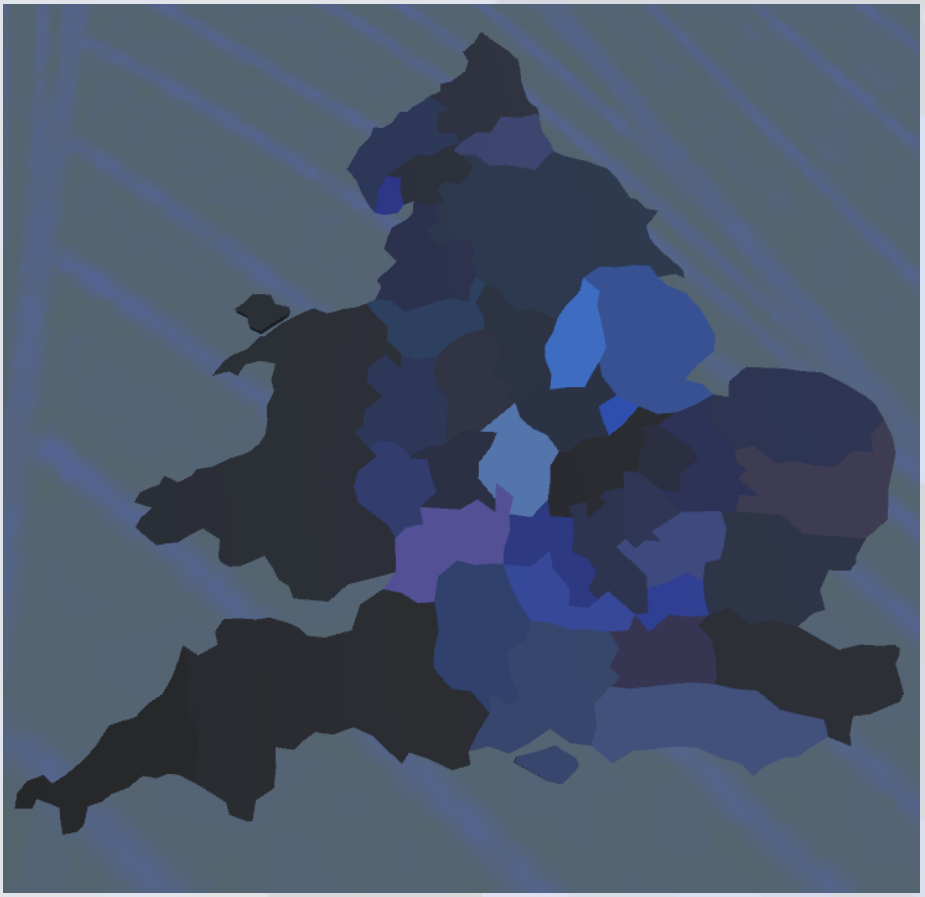
One of the primary goals for this project was to educate younger people on crime. To go about this, we decided to create some facts that could be presented at the end of each round. These facts contain information about crime in one of the two counties that were guessed between in a round.



ART

MAP DESIGN

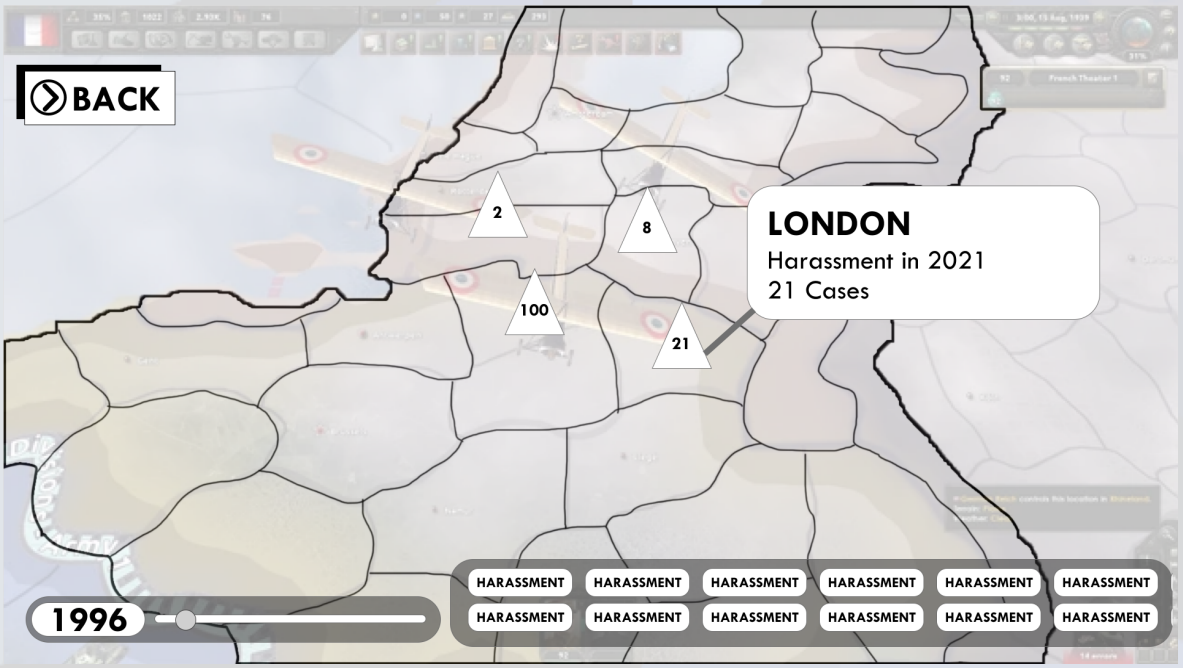
A 3D representation of England was modelled, separated into its respective counties.

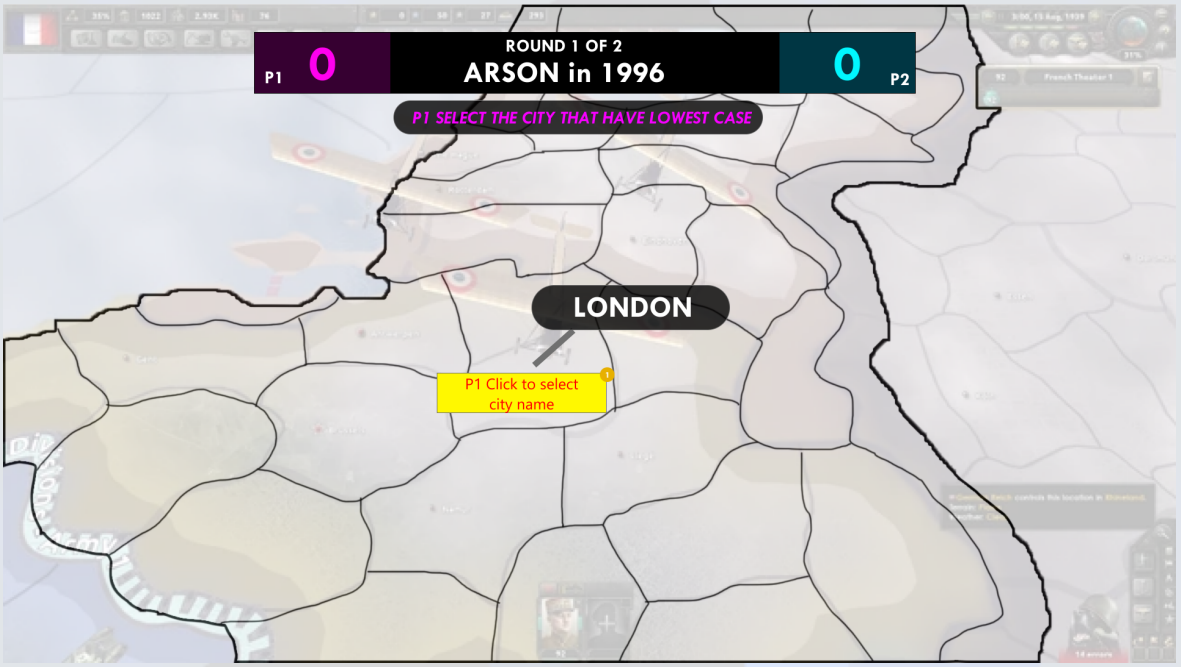


USER INTERFACE

Mockup Menu Design

Mockup Game GUI and HUD Designs




P1
0
ROUND 1 OF 2
ARSON in 1996
0
P2
P1 SELECT THE CITY THAT HAVE LOWEST CASE
LONDON
P1 Click to select city name


P1
0
ROUND 1 OF 2
ARSON in 1996
1
P2
LONDON
BRISTOL
32
P2 WIN!
28
FUN FACT: Contract to the police Does it feel like the situation could get heated or violent very soon? Is someone in immediate danger? Do you need support right away?
If so, please call 999 now.
- https://www.police.uk/pu/contact-the-police/
CONTINUE

AUDIO

Text

DEVELOPMENT TIMELINE

DEVELOPMENT MILESTONES

- **Alpha Milestone**
  - Alpha deadline: 15th November
- **Beta Milestone**
  - Beta deadline: TBC
- **Gold Milestone**
  - Gold deadline: TBC

TEAM MEETINGS

Meetings are conducted on a weekly basis, typically weekends, at 20:00.

TEAM ROLES

- **Charlie** - Programmer
- **Enis** - Programmer
- **Vason** - UI designer
- **Pax** - Modeller