



Type 2

Final Degree Work
Bachelor's Degree in Video Game Design and Development

Emilio Jose Bort Moreno

Search for a Need

PROBLEMS

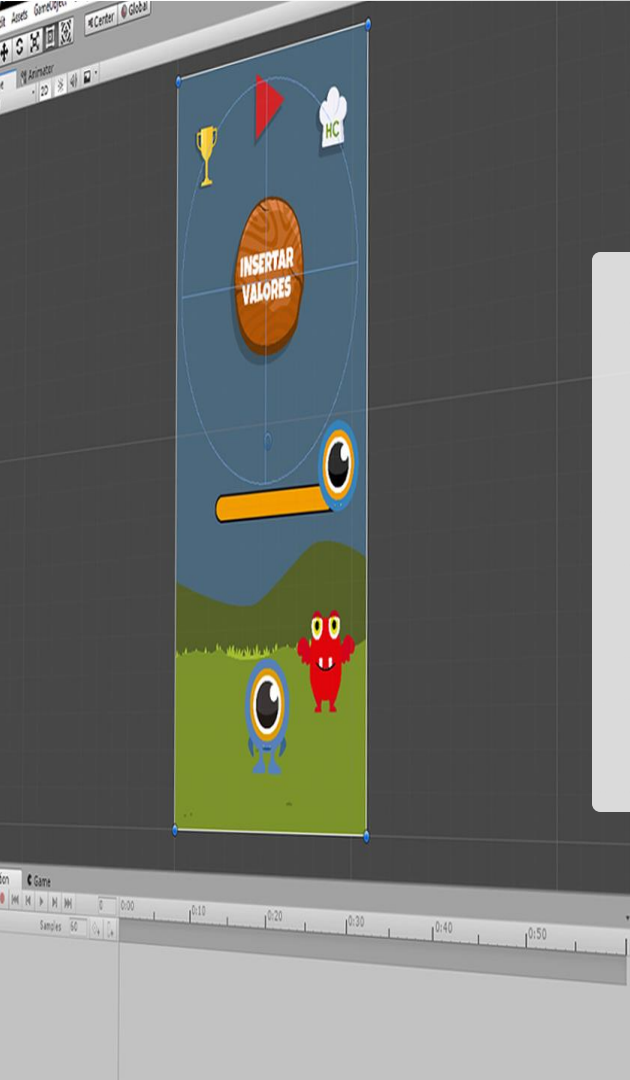
- Boring task for kids
- Calculate insulin
- Not interactive
- Medical Center

[illegible]



Develop Type 2

Fun, interactive and useful



Applications

Unity 3D

Adobe Illustrator



unity

Objectives



1

HELPING CHILDREN WITH TYPE 2 DIABETES

THANKS TO A VIRTUAL PET, CALCULATOR OF INSULIN AND ONE RECIPES BOOK

2

KEEP HAPPY A VIRTUAL PEET

INTRODUCING THE VALUES FOR THE CONTROL OF THE DISEASE, PLAYING WITH IT.

3

GOTTA CATCH 'EM ALL

IF WE HAVE GLUCOSE VALUES BETWEEN 80 AND 250 WE WILL GET NEW CREATURES

4

OBTAIN VALUES FOR THE MEDICAL CENTER

THE APPLICATION STORE THE DATA IN A DATA BASE FOR EXPORT TO A CSV FILE

Start App

RATIO

1



2

SENSITIVITY
FACTOR

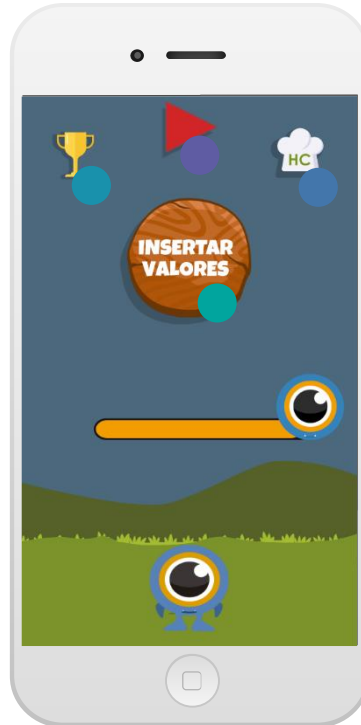
Home Screen

INSERT VALUES

Button to calculate insulin dose

LIST COLLECTABLES

List of all collectables



FOOD SCREEN

Carbohydrate screen of food

ENDLESS GAME

Endless runner minigame to raise the Glu happiness bar

Insert Values

Ratio / Sensitivity Factor / Carbohydrates / Previous glucose / Insulin



Table of Values and SQLite

SQLite Manager - Crear Tabla



Base de Datos:

main

Nombre Tabla:

datos_pacientes



Tabla Temporal



Si No Existe

Definir Columnas

Nombre Columna	Tipo Datos	Clave Primaria?	Autoinc?	Permitir Null?	Única?	Valor Por Defecto
id	INTEGER (strict)	☒ Sí	☐ Sí	☐ Si	☒ Si	
dia	DATETIME	☐ Sí	☐ Sí	☐ Si	☐ Si	
tipo	TEXT	☐ Sí	☐ Sí	☐ Si	☐ Si	
glu_previa	INTEGER	☐ Sí	☐ Sí	☐ Si	☐ Si	
racon	INTEGER	☐ Sí	☐ Sí	☐ Si	☐ Si	
insulina	INTEGER	☐ Sí	☐ Sí	☐ Si	☐ Si	
observaciones	TEXT	☐ Sí	☐ Sí	☒ Si	☐ Si	
		☐ Sí	☐ Sí	☒ Si	☐ Si	
		☐ Sí	☐ Sí	☒ Si	☐ Si	
		☐ Sí	☐ Sí	☒ Si	☐ Si	
		☐ Sí	☐ Sí	☐ Si	☐ Si	

OK

Cancelar

Database Create

```
void AbrirDB()
{
    // Si es PC
    if (Application.platform == RuntimePlatform.WindowsEditor)
    {
        rutaDB = Application.dataPath + "/StreamingAssets/" + DBFileName; //Se divide la ruta para las diferentes plataformas
    }

    // Si es Android

    else if (Application.platform == RuntimePlatform.Android)
    {
        rutaDB = Application.persistentDataPath + "/" + DBFileName;
        // Comprobar si está en persistentData
        if (!File.Exists(rutaDB))
        {

            //UnityWebRequest loadDB = UnityWebRequest.Get("jar:file://" + Application.dataPath + "!/assets/" + DBFileName);

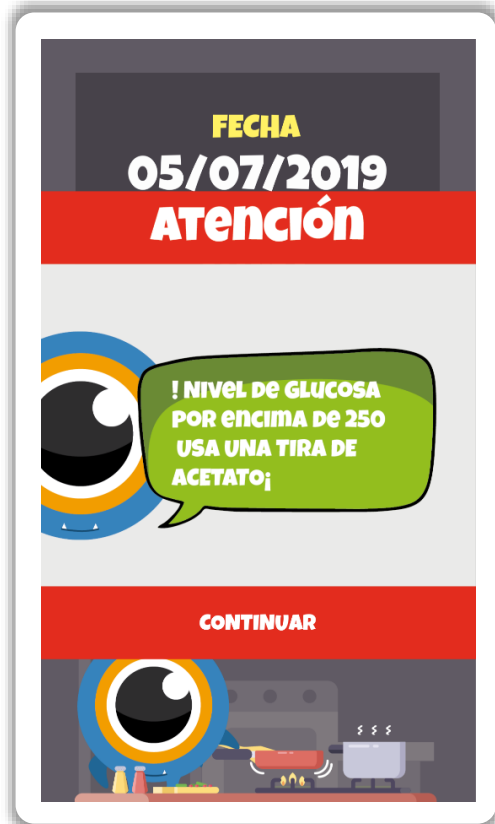
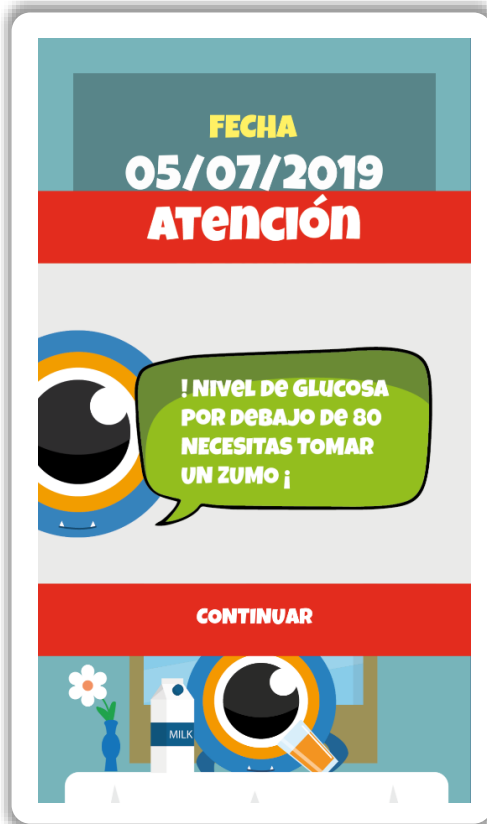
            WWW loadDB = new WWW("jar:file://" + Application.dataPath + "!/assets/" + DBFileName); //Ruta en formato generico de android (Java)
            while (!loadDB.isDone)
            {
            }
            File.WriteAllBytes(rutaDB, loadDB.bytes);
        }
    }

    // Crear y abrir conexión

    strConexion = "URI=file:" + rutaDB;
    dbConnection = new SqlConnection(strConexion);
    dbConnection.Open();
}

void CerrarDB()
{
    // Cerrar conexiones
    leerdatos.Close();
    leerdatos = null;
    dbCommand.Dispose();
    dbCommand = null;
    dbConnection.Close();
    dbConnection = null;
}
```

Warnings





Happiness Bar

4

CHANGE IN HAPPYNESS BAR

If we have the glucose values below 80 or above 250 the happiness bar of Glu is modified



Endless Run Game

DODGE ENEMIES.

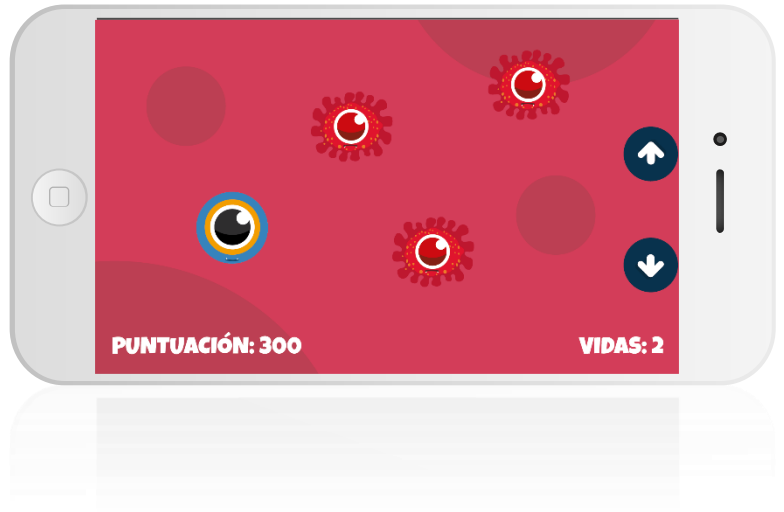
Use the two arrows to avoid enemies

SCORE

By dodging the enemies we will get a higher score.

LIFES

3 lives in the game.





Reward

5

NEW REWARD

If we have glucose within limits for a period of time, we will get a reward





New Creature

6

OPEN EGG

We have made a specific screen to open the reward as in other games where they open chest



List box Collectables

7

GET ALL

As if it were a Pokedex we have to get all the creatures

Use Notification Center

Serialize Data

```
[Serializable]
class DatoaGuardar
{
    public bool tutorial;
}
```

Use Notification Center

Save Data

```
public void Guardar()
{
    NotificationCenter.DefaultCenter().AddObserver(this, "SaltaTutorial");

    BinaryFormatter bf = new BinaryFormatter();
    FileStream file = File.Create(rutaArchivo);
    DatosGuardar datos = new DatosGuardar();
    datos.tutorial = tutorial;
    bf.Serialize(file, datos);
    file.Close();
}
```

Use Notification Center

Load Data

```
public void Cargar()
{
    if (File.Exists(rutaArchivo))
    {
        BinaryFormatter bf = new BinaryFormatter();
        FileStream file = File.Open(rutaArchivo, FileMode.Open);

        DatosGuardar datos = (DatosGuardar)bf.Deserialize(file);
        tutorial = datos.tutorial;
    }
    else
    {
        tutorial = false;
    }
}
```

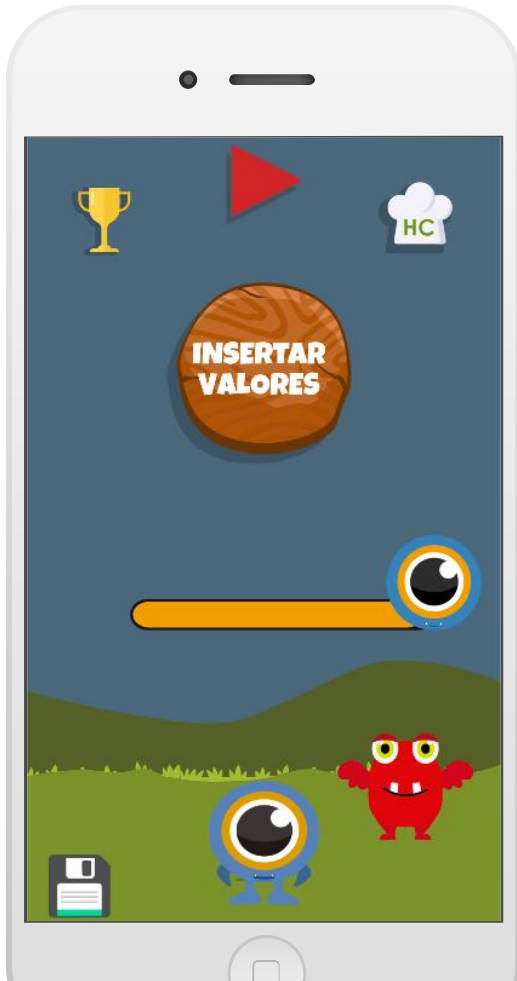


Food Screen

8

Recipe Book

Find a recipe book with different dishes, their weight and rations



Save Data

8

Save data in CSV

Once the month is over, we will see the button to save the data in a CSV.

Save and Create CSV file

```
public class saveCsv : MonoBehaviour
{
    public string cargaRatio;
    public string cargaFactor;
    public string cargaHidratos;
    public string cargaGlucosa;
    public string cargaInsulina;
    public string cargaFecha;
    public string datos = "DatosPaciente";
    public int contador = 0;
    public void cargaryGenerar()

        cargaRatio = CargarGuardar.cargarGuardar.ratio;
        cargaFactor = CargarGuardar.cargarGuardar.factSensibilidad;
        cargaGlucosa = CargarGuardar.cargarGuardar.glucosa;
        cargaInsulina = CargarGuardar.cargarGuardar.insulina;
        cargaHidratos = CargarGuardar.cargarGuardar.hidratos;
        cargaFecha = CargarGuardar.cargarGuardar.fecha;
        CrearArchivoCSV(datos);

    }
    public IEnumerator CrearArchivoCSV(string nombreArchivo)
    {
        string ruta = Application.persistentDataPath + "/" + nombreArchivo + ".csv";

        //Crear el archivo
        var sr = File.CreateText(ruta);

        string datosCSV = "Fecha Actual:" + cargaFecha + System.Environment.NewLine;
        datosCSV += "Ratio:" + cargaRatio + System.Environment.NewLine;
        datosCSV += "Factor de sensibilidad:" + cargaFactor + System.Environment.NewLine;
        datosCSV += "Glucosa Previa:" + cargaGlucosa + System.Environment.NewLine;
        datosCSV += "Hidratos Carbono:" + cargaHidratos + System.Environment.NewLine;
        datosCSV += "Hidratos Carbono:" + cargaInsulina;

        sr.WriteLine(datosCSV);
        FileInfo fInfo = new FileInfo(ruta);
        fInfo.IsReadOnly = true;
        sr.Close();

        yield return new WaitForSeconds(0.5f); //Esperamos para estar seguros que escriba el archivo

        //Abrimos archivo recién creado
        Application.OpenURL(ruta);
    }
}
```

CSV TABLE

Data exported in csv for viewing in Excel

Thanks