Android Project - Team 12

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Problem statement:

- How to create mass awareness amongst younger generations regarding the impact of water pollution, and how marine life is affected by such doings.

- SDG Goals: **Clean Water and Sanitation** and **Life below water**

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- Our application is based on the above sustainable development goals.

- Using this application, one can come to a knowledge about the need for water to be clean and how it affects the survival of life under the water.

Proposed solution:

- Building a **mini game**

- **Why game?**

- This game can create mass awareness amongst younger generations who would not be interested in reading articles or news about educational topics.
- Games like this would increase the reach to spread awareness among kids from a younger age.

- **Game Idea and Instructions to play game:**

  - There will be a *Seahorse/ (marine animal)* avatar at the bottom left of the screen where users *can move up/down by tapping on the screen.*

  - And there would be a continuous movement of different items (harmful waste / food) from right to left.

  - Each *game has three lives.*

  - There are non-hazardous waste materials like tire and plastic water bottle

  - Useful materials to eat are mini fish and a fish

  - If a Marine animal *eats a mini fish, the score will be increased by 10*. If it *eats fish, then the score will be increased by 20.*

  - If a Marine animal *eats a tire, the score will be reduced by 10*. If it *eats plastic water bottle one life will be deducted*

  - If the three lives get over, the game will be over.

  - The main goal is to **escape** from hitting the **harmful items** and **gain as many points** as possible.

  - Difficulty level increases as the player progresses through the game.

Solution through App:

- Gives a basic pictorial view on life under water

- Helps understand the consequence of waste disposal into oceans

- Helps distinguish between hazardous and non-hazardous waste

- Understand Effects of waste on marine life

- Create mass awareness amongst younger generations on what and what to not dispose of into water bodies.

Contributions:

Pre-technical work:

- Searched for relevant images for fish characters, background and icon

Technical contribution:

- **Pooja Sree - CS20B002**
    - activity_splash
    - GameView (half)
    - Setting up the bitmap array of images, speed, orientation and rendering on to the screen in game activity
- **Namitha Reddy - CS20B011**
    - activity_main(half)
    - GameView
    - UI - buttons, font styling and design of initial page
- **Manasa - CS20B019**
    - SplashActivity
    - activity_gameover(half)
    - Styling for game over activity
- **Hema Sri - CS20B020**
    - GameOverActivity
    - activity_gameover(half)
    - Written functions and onClick events for game over
- **Preethi Varsha - CS20B030**
    - Main Activity (java file)
    - activity_main(half)
    - UI - icon setup, UI, for game activity

Software Engineering Principles:

The entire project is divided into 5 phases:

- **Requirements Gathering**

    - We found out how software could make a better impact on people's awareness of damage done to water animals due to the waste dumped into the oceans
    - Targeting children of age < 10-15 yrs will help educate them from an early age.
    - Why children? World has a majority of young population, and the future depends on the decisions they make. So, we decided on this age group particularly.

- **Requirements Analysis**

  - We analyzed the situation of life under water and cleanliness of water. So we would like to show how it affects marine lives.
  - The main target audience is youth. Mainly at this age everyone likes to play the games. So, by playing this game they get a brief idea about the cleanliness of water and throwing the waste into rivers/ocean.
  - This may restrict themselves from doing that and may also educate some more people around them.

- **Design**

  - Since the target audience are children whose age is < 10-15 yrs.
  - We wanted a design the game such that is colorful and attractive, which would make the app more appealing to the target audience
  - Since the game is intended for children, we wanted to keep it simple and minimalistic.
  - Therefore, we decided to go with standard game features such as Start Game, Lives, Score Counter [100]

- **Coding and Debugging**

  - We have written code for a game in android studio using java
  - There are four java files named MainActivity, GameView, SplashActivity, GameOverActivity for overview of a game and 3 xml files named activity_main,activity_splash,activity_gameover for User Interface
  - There is an error for the "onClick", we debugged it using some google resources

- **Testing**

  - We tested the app using android studio emulator
  - Later, tested on mobile phones to check if the speed of elements on screen is moderate, color contrast ratios, etc

Possible Extension of App:

- Flexibility to change the avatars of character
- Flexibility to change the theme and background
- Display of Harmful effects of the waste material consumed
- We can add Sound effects to improve user experience

Screenshots: