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Do Not Give Up: Gamified Approach to Create Awareness on Drug Abuse Among Youths

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Abstract: The rising incidence of drug abuse among adolescents in Oman, particularly involving cannabis and opium, calls for innovative prevention strategies. This paper presents "Do Not Give Up," a culturally tailored, web-based educational platform integrated with an interactive game aimed at raising awareness about drug misuse, its consequences, and available rehabilitation resources. The platform offers comprehensive information on drugs, legal implications, and treatment centers, while enabling users to track recovery progress and communicate with healthcare professionals. Designed using the Agile methodology, the project emphasizes user engagement, accessibility, and relevance to Omani society. Preliminary results suggest the platform's effectiveness in educating youth and supporting addiction recovery, with potential for future expansion into mobile applications.

Keywords: Drug prevention, addiction awareness, educational games

1. Introduction

Drug abuse, particularly involving narcotic and psychotropic substances such as cannabis and opium, presents serious health, social, and economic challenges in Oman. The United Nations Office on Drugs and Crime (2018) highlights a growing trend in opioid misuse, with limited public access to reliable, youth-friendly information despite the presence of rehabilitation centers and awareness campaigns. Existing efforts, including those by the Royal Oman Police, often lack interactive and engaging digital tools tailored to younger audiences. To address this gap, the "Do Not Give Up" initiative introduces a comprehensive digital platform that combines an educational website with an interactive game. This platform provides accessible information on drug effects, legal consequences, treatment centers, and tools for self-monitoring recovery, aiming to reduce drug abuse and support rehabilitation through technology-driven engagement.

2. Literature Review

Existing platforms such as Drug-Free World (2006) and the National Institute on Drug Abuse (NIDA) offer educational resources on drug abuse but exhibit notable limitations. Drug-Free World lacks age-appropriate content and localized support, while NIDA is U.S.-centric and uses complex scientific language, making it less accessible to a broader audience (Drug-Free World, 2006; NIDA, n.d.). These shortcomings highlight the need for a culturally relevant, user-friendly solution tailored to Oman.

Research supports the effectiveness of digital interventions in drug prevention, particularly among youth. Studies show that gamification enhances engagement and improves knowledge retention (Smith et al., 2020; Johnson & Adams, 2019). Building on these insights, "Do Not Give Up" integrates interactive and educational elements designed explicitly for Omani youth and adults, addressing both informational and motivational needs.

3. Methodology

The project followed the Agile development methodology, which was chosen for its flexibility and iterative nature. This allowed for continuous feedback and adaptation to user needs.

Fig 1: Agile Methodology

The development process was structured into six key phases:

1. Requirements: Community needs were assessed through research and analysis of existing platforms, revealing a lack of localized, interactive drug education tools.

2. Design: A three-layer architecture was implemented, comprising the user interface, application logic, and database, to ensure smooth functionality and scalability.

3. Development: Core features were built, including a doctor-patient chat system, daily progress tracking for addicts, educational quizzes, and a gamified learning experience for youth.

4. Testing: Usability testing was conducted to refine the user experience and ensure platform reliability.

5. Deployment: The platform was launched for public access, targeting both youth and adults in Oman.

6. Review: User feedback was collected to guide future enhancements and ensure the platform remains relevant and practical.

The development utilized tools such as XAMPP (v8.2.4), Visual Studio Code (v1.83.1), PhpMyAdmin (v8.0.31), and Unity (v2022.3.13f1) for game creation.

4. Implementation

A. Requirement: At this stage, the community's need for this project was studied through various approaches such as visiting schools and higher education institutions, conducting surveys on the effects of drugs, checking for the awareness of usage, etc. Moreover, web resources and approaches made for similar studies in other countries were also taken into consideration for implementing this study. The web resources we accessed had a drawback of not having information about drug or rehabilitation centres and not providing both solutions in the same place. This study of ours will overcome this issue by combining both gaps addressed in other resources.

The figure shows us the Use Case diagram for the website. It shows us who the actors are on this website and how they interact with the website using the use cases. We have four actors

Namely, the doctor, the visitor, the patient, and the admin. Each plays a different role on the website and the game we designed.

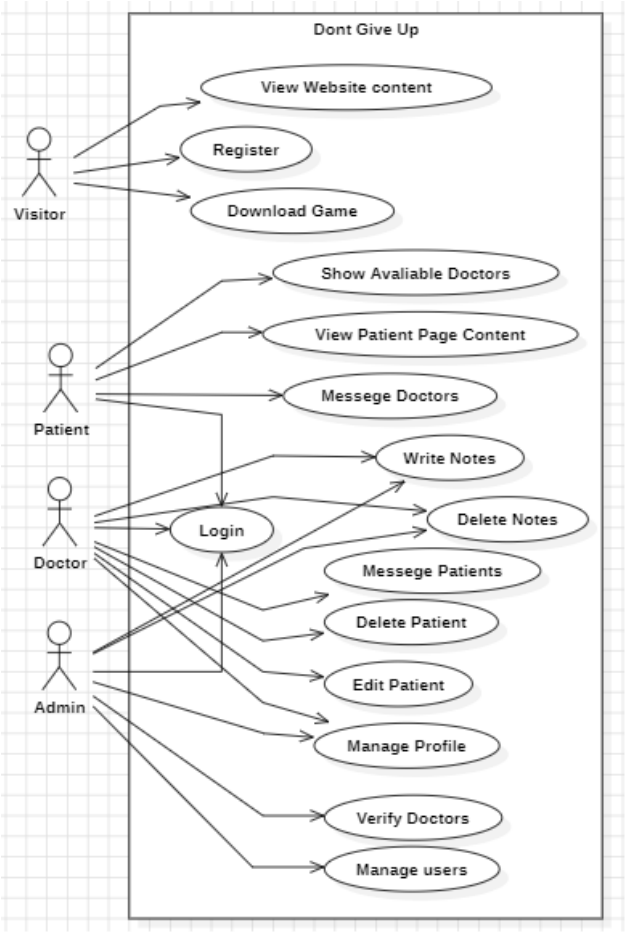

Fig 2: Use case diagram

B. Design: On this site, we rely on a three-layer structure to provide a smooth user experience and strong performance. The user uses his device connected to the Internet to access the site, and if he wants to import or add information, he requests it from the database.

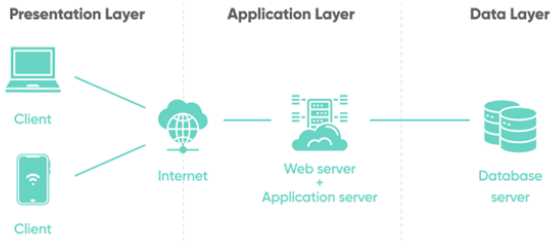

Fig 3: Three layered design approach

C. Website Development: The website is designed to serve two modules. 1. A website that provides information about doctors and other general information about drug abuse. 2. The game is available for teens and youths to play and raise awareness about the harmful effects of drug usage.

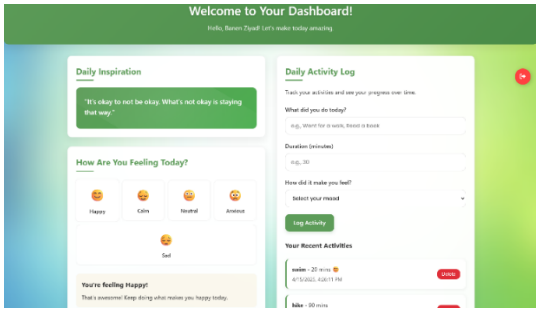

Fig 4: Dashboard

Caring for the patient and their mental health: This is done by registering daily on the website, inquiring about their mental state, and providing them with motivational messages daily. Figure 4 above shows the dashboard of the user where the user can view all their information, including their activities.

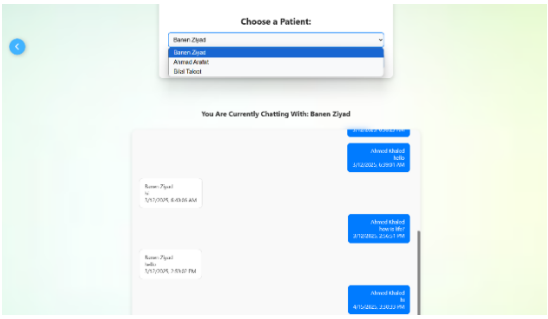

Fig 5. Chat room

Figure 5 shows communication between the doctor and the patient. An exceptional chat room service is enabled on the website to facilitate communication between doctors and patients. This enables personalized counselling and awareness among drug users without compromising on privacy.

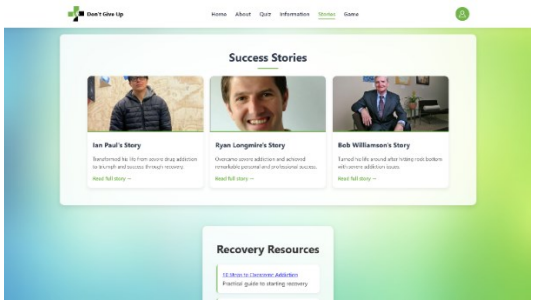

Fig 6. Success stories

Figure 6 shows the success stories of rehabilitated users. Since the data is unavailable for Oman, success stories from other countries have been shown here. Providing success stories and resources for drug prevention and challenges to motivate people they get rid of this habit.

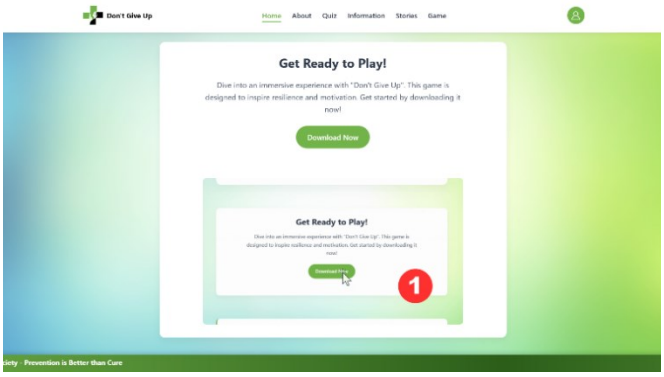

Fig 7. Game link

Figure 7 shows the link for downloading awareness games. The website includes this feature to provide a downloadable game for children to raise their awareness about drugs.

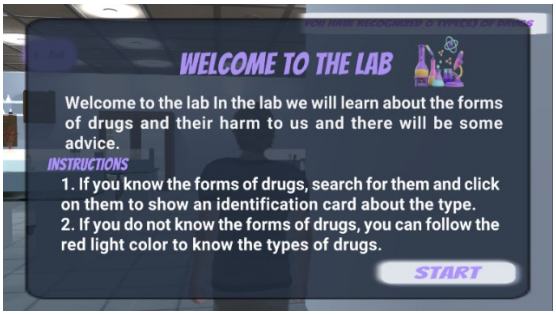

Fig 8. Identifying the drug

The game developed has various levels with different themes. The first theme is based on a laboratory setup, where the user will learn about the multiple types of drugs. Here, various forms of medicines are shown and users are educated to identify those so that the user will not attempt to use them by mistake.

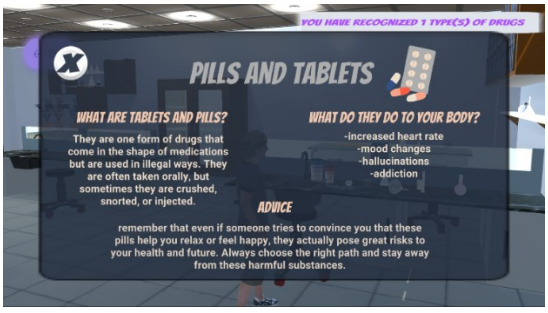

Fig 9. Information about the drug

Figure 9 shows a form of drug, the nature of the drug, the harmful effects the drug can cause the user, and advice given to stay out of those drugs.

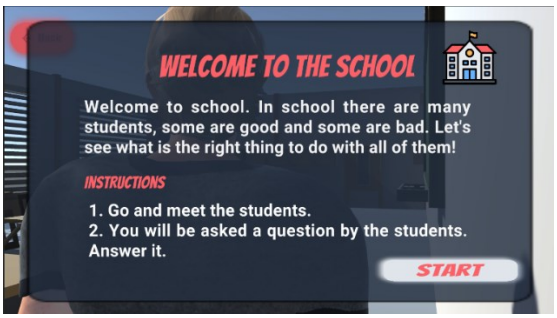

Fig 10. Level 2

The next level tests the user's awareness of the drugs he learned in level 1. This level 2 is carried out in a classroom scenario, where the user is given a chance to accept the offer for the drug or to avoid the drug. If the user avoids taking the drug, it is considered a positive sign, whereas if the user accepts the drug, then the user will be educated not to do so by explaining the harmful effects of the drug.

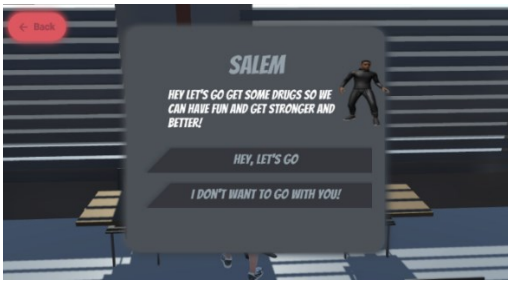

Fig 11. Testing the user

Figure 11 shows how a user can be tested to see whether they follow the awareness they got from level 1. Here, a question was asked of the user to go and get some drugs and have fun. If the user goes with the influencer, then it will be considered a negative point, and the harmful effects of the drug will be shown to the user. If the user rejects the offer, then he will be appreciated.

Fig 12. Result of the user accepting the offer to use the drug

Fig 13. Result of the user rejecting the offer to use the drug

Level 3 of the game is all about testing the overall awareness of drug usage. This phase is conducted through the quiz. This quiz tests the user's knowledge of drugs.

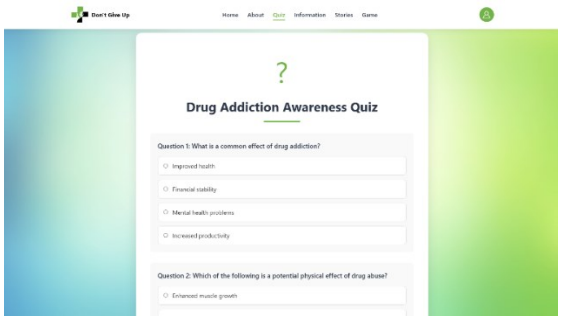

Fig 14. Quiz

Apart from the above quiz type given in Figure 14, multiple-choice questions are also used to test the user's awareness, as shown in Figure 15.

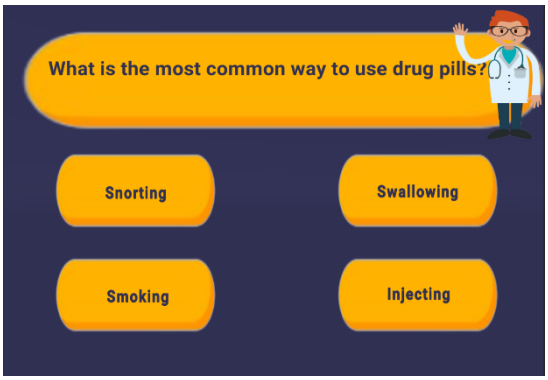

Fig 15. MCQ

Once the user completes all the above levels, they move on to stage 2 of the game. This game follows the concept of the subway surf game as a model, where the user collects only coins and not drugs. If the user collects drugs, then awareness will be created about what to do and what not to do when using drugs.

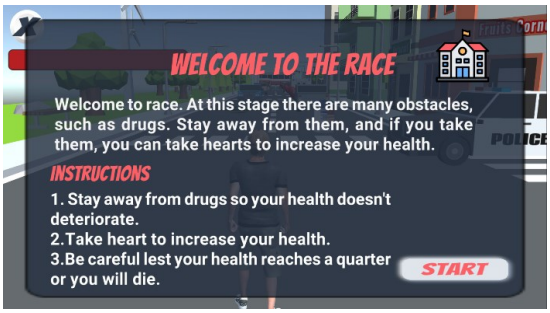

Fig 16. Stage 2 instructions

Fig 17. Stage 2

Figure 17 shows the game theme where the player will run in the street with multiple obstacles, such as drugs, as shown. The player must stay away from them so that he will not get affected by the drug and can continue to live healthily. If the player takes the drug, his life will decrease, and on collecting more drugs, he will finally lose the game. In other words, the player dies.

Fig 18. Player collecting drug

Figure 18 shows the comment given to the player who chose the drug. It says that the player was disappointed by selecting the drug. Moreover, the player's life reduces once the player selects the drug. This approach will make the player very cautious about choosing the drug.

Fig 19. End of game

Figure 19 shows the end of the game since the player has reached the maximum penalties by choosing the drugs repeatedly. The player is also given another chance so that they will be cautious not to select drugs.

Fig 20. Success

Figure 20 shows the successful completion of the game where the player successfully reaches the goal without selecting the drugs and retaining his health.

Hardware and Software:

This table shows the List of software that will be used in this project: XAMPP, Android Studio, Visual Studio Code, MySQL—Workbench, Blender, and Unity.

○ Software	○ Specifications
○ XAMPP	○ 8.2.4-0
○ Visual studio Code	○ 1.83.1
○ PhpMyAdmin	○ 8.0.31
○ Unity	○ 2022.3.13f1

1. Server XAMPP is a free and open-source web server solution package for testing user code in Visual Studio Code and MySQL. It is easy to use and set up [12].

2. Visual Studio Code: It is considered one of the most important tools in website design because it supports all programming languages that we must use, and it is also lightweight and easy to use.

3. PhpMyAdmin: This program was used because it facilitates the management of the site's databases, displays user data in an organized manner, and links data to each other.

4. Unity: This program was used because it enables us to create a 3D game and is considered one of the easiest stages used to develop games because it provides an easy user interface and there is also a store of their own that you can use to put some of its things in your game.

Conclusion

The Don't Give Up website is a website dedicated to raising awareness about drugs and their harms and to making society free of drugs. It also contains essential information such as information about drugs, rehabilitation centers in the Sultanate of Oman, specialized doctors, and touching success stories of addicts who have defied addiction, as well as laws related to drugs. The website and game are hosted in the Muscat College portal, which enables the students at Muscat College to access the game. Later, the feedback collected from the students revealed the effectiveness of the awareness created among the students. The website and the game served the purpose of creating awareness. A plan to introduce the game to the school students is being developed as the next step. As a future enhancement, the website will be made available as a mobile application for broader reach.

Acknowledgements

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