

EDU LANG



Project submitted in the context of the course

I3308

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Abstract

After the smart phone revolution many things changed in our life including schools and teaching in general. People nowadays are so distracted by their social media statuses and mobile games, they can barely focus on their daily life issues. Because of this phenomena teachers are facing many problem teaching especially the younger generations. Every year it becomes harder and harder to keep the children focused on the knowledgr bring taught, because their mind are so distracted by the games and show they play and watch at home on their devices. In this era teachers need to find new ways to deliver the knoweledge to the kids, thus we introduce our game. This game helps the teacher teach basics in the arabic language in aan entertaing form that can keep the attention of kids. We choose the arabic language because the new generation are shifting more and more away from iur language to learn english instead since its a globally used language.

Chapter I - Overview on similar games

I.1. Educational and Non-Educational Games

It doesn't necessarily have to be fun or particularly engaging to be helpful. It helps, but it's not necessary. Think about it like an educational video: it's clearly not as entertaining as a movie or TV show, and it's generally not going to hold anyone's attention nearly as well, but it can be an efficient way to get information across. Where educational videos are best for teaching factual information, games are better at teaching skills and giving the player pseudo-experience at that skill (and of course, as discussed in class, games also work great for memorizing certain kinds of facts).

Ideally, educational videos and games would be super fun, but that may be asking/expecting too much. Educational non-video games have been around since before video games were possible, and they just aren't as fun or engaging as their non-educational counterparts.

Educational games are **games** explicitly designed with **educational** purposes, or which have incidental or secondary educational value.

Non educational games have a purpose of entertainment only they donnot consider a theme or a leason to be taught.

I.2. Classification of Educational Games

When is a game considered educational?

Almost all types of games may be used in an educational environment, however Educational games are **games** that are designed to help people learn about certain subjects, expand concepts, reinforce development, understand a historical event or culture, or assist them in learning a skill as they play. As educators, governments, and parents realize the psychological need and benefits that gaming has on learning, this educational tool has become mainstream. Games are interactive

play that teach us goals, rules, adaptation, problem solving, interaction, all represented as a story. They satisfy our fundamental need to learn by providing enjoyment, passionate involvement, structure, motivation, ego gratification, adrenaline, creativity, social interaction and emotion in the game itself while the learning takes place.

I.3. Analysis of the Existing Similar Apps

Inspired by what has been mentioned about the skills and competencies covered so far by

Educational games For this aim, we went through similar game-like and games already existing in order to benefit from the feedback given to those games and try to treat the issues that faced those games, rather than trying to add non-existing features to our game.

Antura & the Letters (Arabic)

Help your kids learn Arabic with this Award-winning FREE game. Catch Arabic letters hidden around the world, while solving puzzles and earning gifts along the way. With Antura, kids will be able to easily grow their language skills and practice reading in Arabic as they progress through the game one step at a time. You don't need internet access to play, so your child can read anywhere! Antura won the Best Serious Game award at the Fun & Serious Festival 2017.

This free game is great for any child who wants to learn Arabic letters and words. Antura and the Letters is entirely in Arabic



English Grammar For Kids:

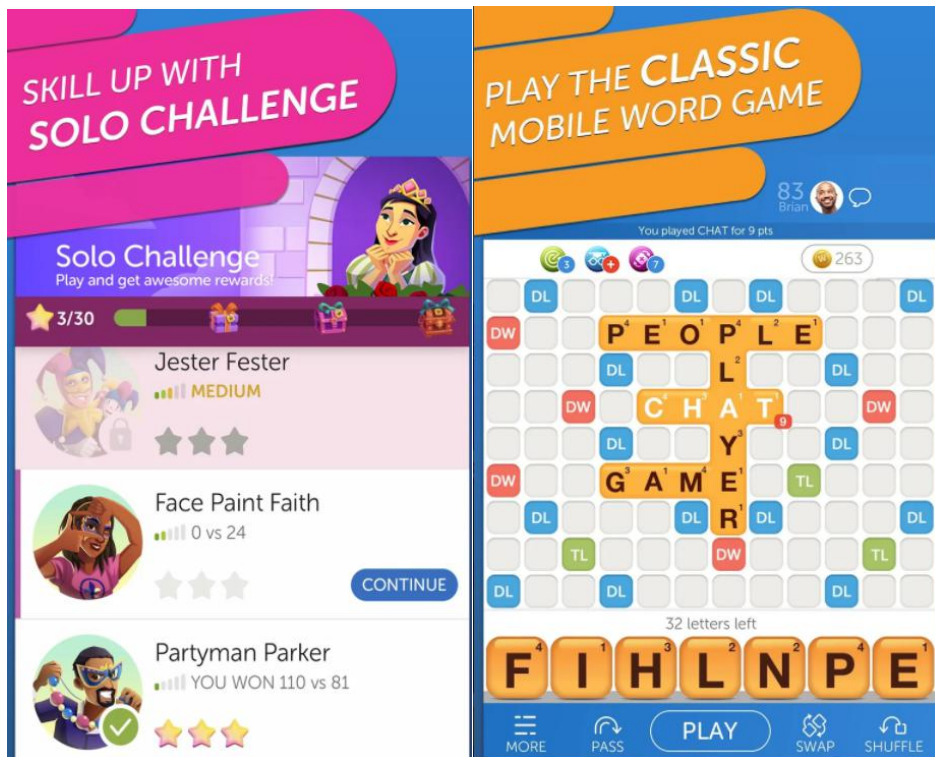
An amazing app for kids to practice the 8 parts of speech: Noun, Pronoun, Adjective, Adverb, Verb, Preposition, Conjunction and Interjection. This game is ideal for 3rd to 7th grade students who wish to become masters in parts of speech. With 1000 sentences and a large variety of questions, a child will be a master of the parts of speech if he/she solves all 10 levels. The cute dinosaur is your Grammar coach. A kid has to identify which part of speech the underlined word belongs to. There are ten levels and ten sentences in every level. New sentences and underlined words appear everytime you play. So solve thousands of sentences!



Words with Friends

Words With Friends is an amazing mobile game that will help you **increase your vocabulary**. You can play it with your friends, family or online contenders. Thanks to this game you'll remember English words faster and **practise your spelling**.

The game is also free of charge but it offers in-app purchases for those who are interested in getting them. You can use it on your **iPhone, iPad or iPodTouch**. If you ever get bored with it, remember that there's a follow up to it too – Words With Friends 2.



I.4. Aim of EduLang

The arabic language is for sure the best language however, many arabic people nowadays gravitate towards foreign languages with many platforms lacking the support for arabic language. This is where this games come in handy. By intriducing a game aspect to learning we are encouraging the kids to study this amazing language while staying entertained

After analizing similar application that targets in teaching languages, especially those that aims at teaching the arabic language we decided to make a game that teaches basics of the arabic language. This game can have many approaches since this arabic language is the largest language so needed to narrow our choices. We chose to taeget 1st grade up to 6th grade by teaching them specific arabic grammar mainy difference between male and a female.

I.5. Report Structure

In what follows, we illustrate the design and development phase of the game by presenting UML diagrams and data models and explaining the technologies we used all provided in Chapter 2 Design and Development of EduLang, then we go in-depth into the implementation phase of the games showing graphical illustrations for the developed game in Chapter 3 Implementation Phase and finally we provide a conclusion and propose our future works in Chapter 4 Conclusion.

Chapter II - Design and Development of EduLang

II.1. Introduction

In the previous chapter, we explained the difference between educational and non educational games and we showcased similar games to the games planned to be developed. In this chapter, we will provide a close insight about the infrastructure of the design of the games and further illustrate the interactive actions the player can do in each of the proposed games, and at last, we are going to explain about the technologies used to fulfill a successful process of development of these serious games.

II.2. UML Diagrams

In this section, we will further illustrate UML diagrams and detailed textual descriptions of use cases.

2.1. Use Cases

The following figure represents the use case of the proposed game. We can infer from the figure that the general most common interactive actions are represented by actions accessible by the actor player while the specific actions that are unique for each game are represented by actions privileged to the game player .



2.2. Use Cases Textual Description

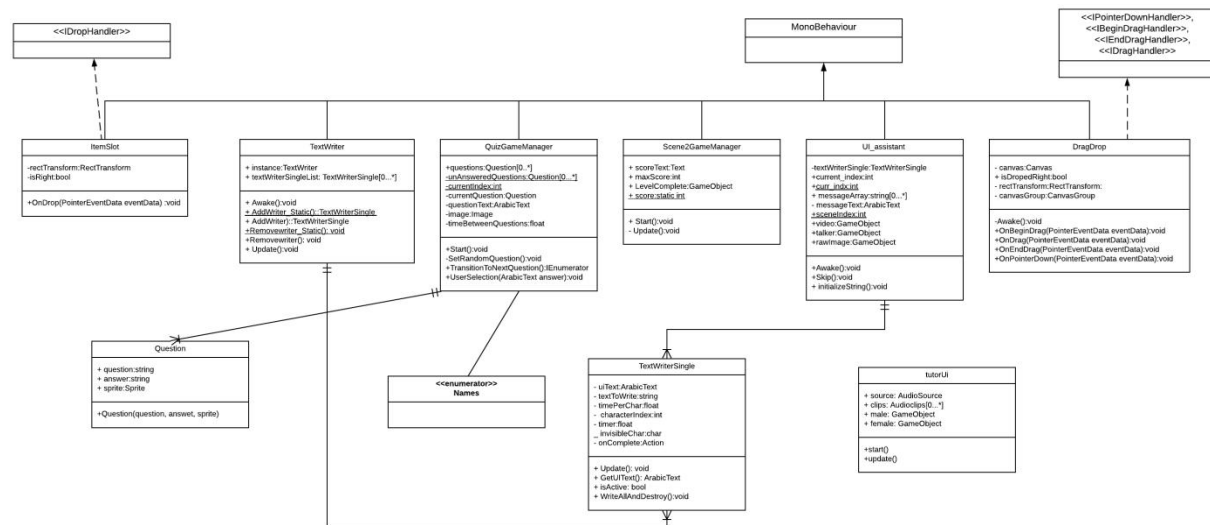
Number	1
Name	Choose Subject
Actors	Student
Description	This use case allows the student to what topic he wants to learn in the game.
Pre-Conditions	The user is logged in
Post-Conditions	

Normal Flow	<ol style="list-style-type: none"> 1. The user open the game 2. Logs in if not 3. Chooses the topic to study 4. Chooses his/her level 5. play
Exceptions	Registration form input returned validation error The user phone number already exists in the system The user email address already exists in the system
Description	Allows the student to choose what topic he wants to study

Figure 5: Example for a DTD

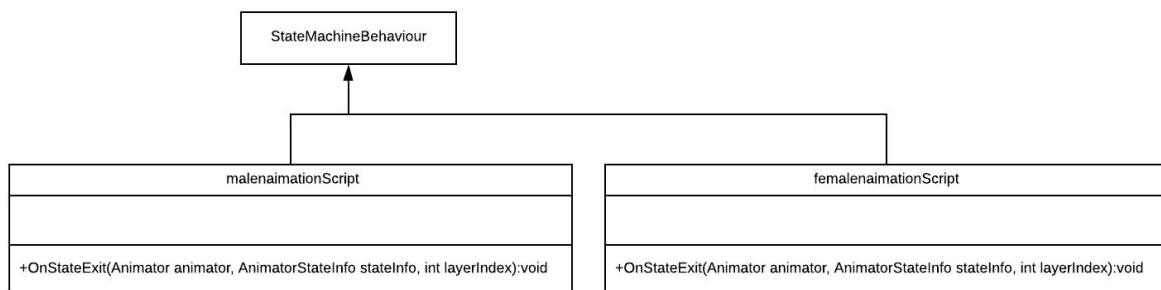
II.3. UML Class Diagram

In this section, we will provide a class diagram mainly presenting the classes that are found in unity and we extended from and used in the development phase of the games and then we present the class diagram of each of the proposed games.



In the Diagram above we have:

- DragDrop implements from the three classes provided by UnityEngine (IPointerDownHandler, IBeginDragHandler, IEndDragHandler and IDragHandler).
- QuizGameManager manages the questions asked to the user after tutoring scenes
- TextWriter contains the necessary methods to show that letters are being printed out one by one while the tutor is talking, showing them in a talking bubble
- UIAssistant is the class necessary to control the tutoring scene, it communicates with the textwriter to give the necessary parameters (audio, strings,) it also flips to another scene



In the above figure we have:

Two scripts each responsible to some animations in game.

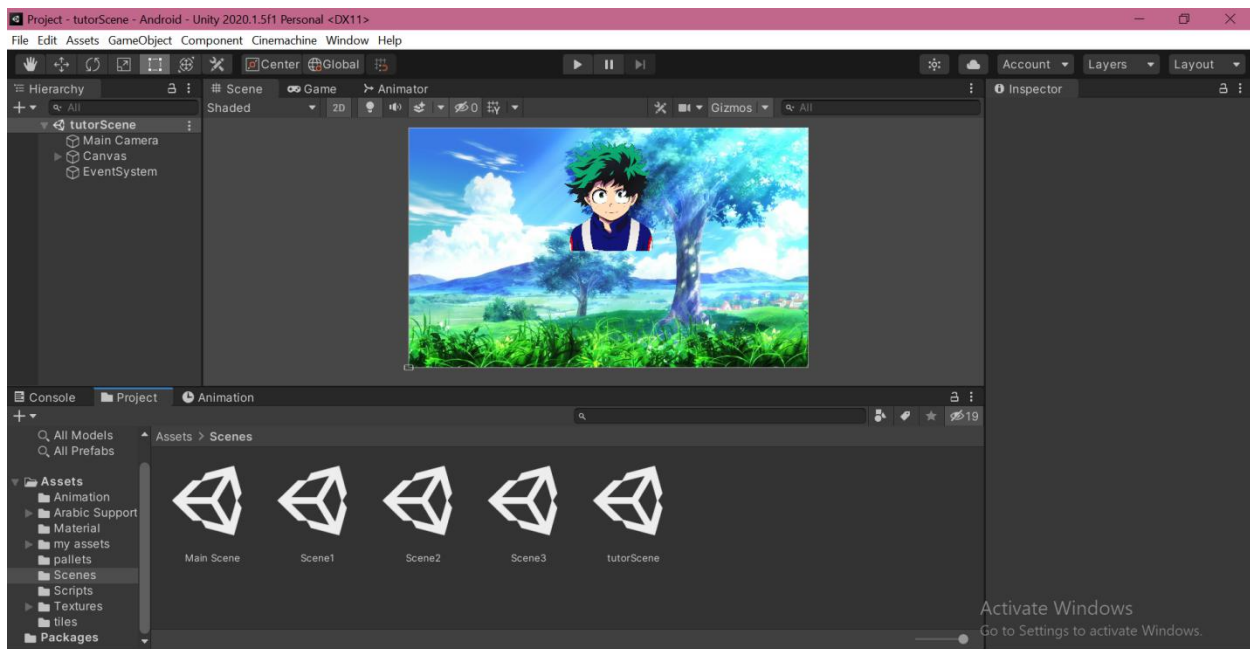
II.4. Technologies Used

We are going to talk in this section on utilities we used to complete our game:

Unity Engine:

Unity is a [cross-platform game engine](#) developed by [Unity Technologies](#), first announced and released in June 2005 at [Apple Inc.'s Worldwide Developers Conference](#) as a [Mac OS X](#)-exclusive game engine.

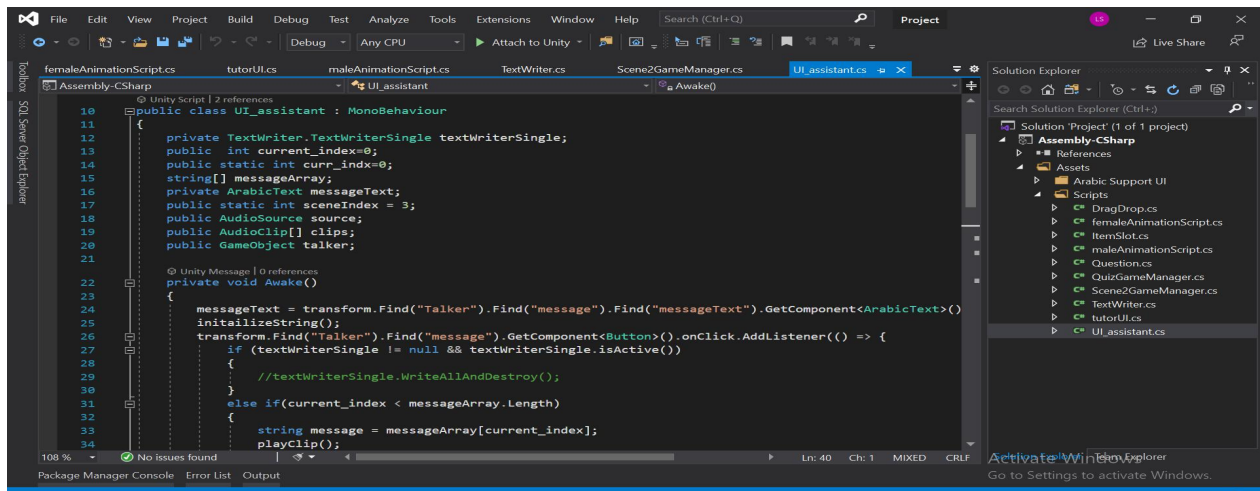
Unity gives users the ability to create games and experiences in both [2D](#) and [3D](#), and the engine offers a primary scripting API in [C#](#), for both the Unity editor in the form of plugins, and games themselves, as well as [drag and drop](#) functionality. Prior to C# being the primary programming language used for the engine, it previously supported [Boo](#), which was removed with the release of Unity 5,[29] and a version of [JavaScript](#) called *UnityScript*, which was deprecated in August 2017, after the release of Unity 2017.1, in favor of C#.



The above Figure show the unity editor which allows for many functionalities including animation , an inspector in which values can be changed and components like scripts, Rigidbody, Audio Source... can be added, the view which shows the scene so far.

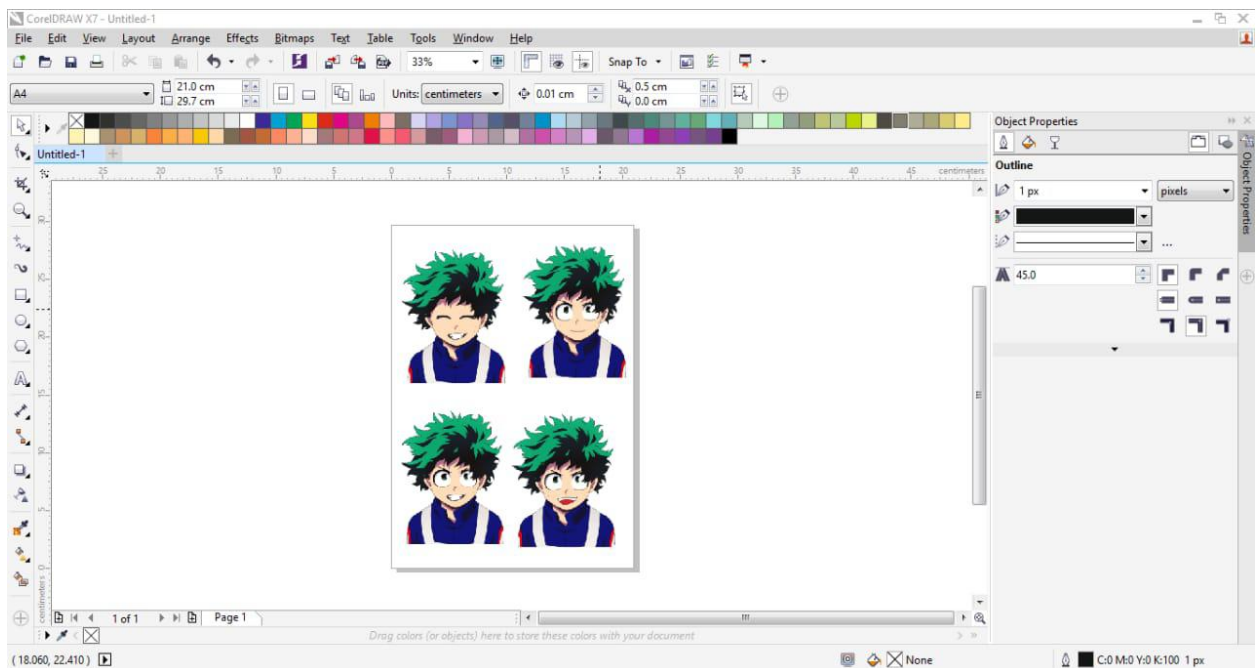
Unity Interfaces:

The unity engine provided a variety of interfaces, that we used in our games to better code algorithms like the drag and drop.



CorelDraw Graphic Suite:

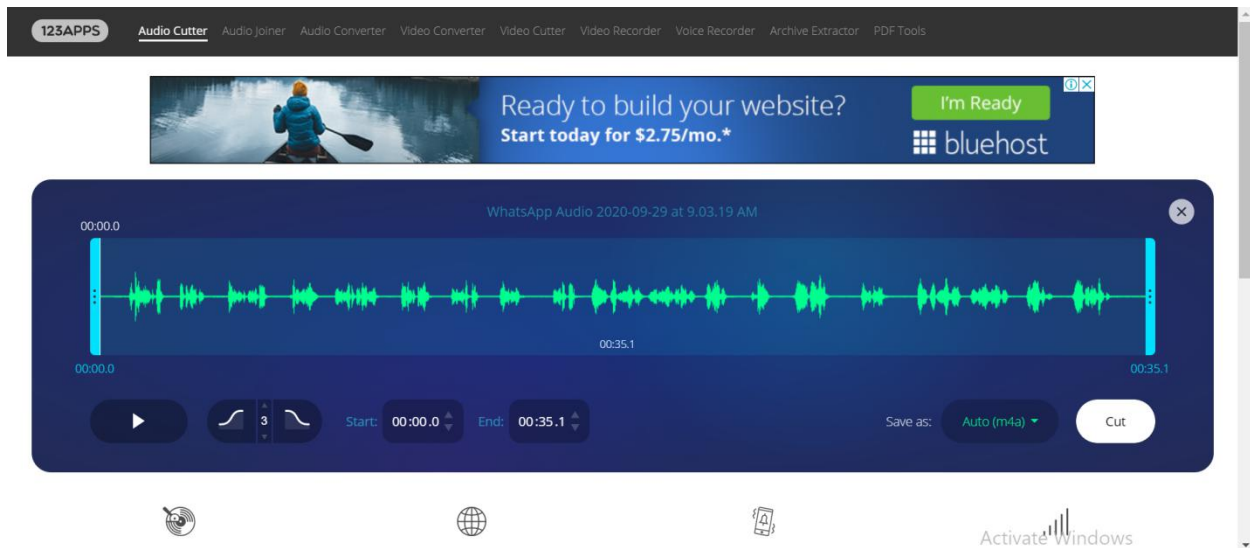
CorelDRAW is a [vector graphics editor](#) developed and marketed by [Corel Corporation](#). It is also the name of the Corel graphics suite, which includes the [bitmap-image editor](#) [Corel Photo-Paint](#) as well as other graphics-related programs .



We used the corel draw software to design various expressions for the tutor figure in order to make some animation in the unity engine.

Mp3cut.net

Audio Cutter is an online app that can be used to cut audio tracks right in your browser. Fast and stable, with over 300 supported file formats, fade in and fade out features, ringtone quality presets, our app is also absolutely free. No special skills are required to use the app. It's all simple: just upload the file, select a fragment using the sliders, and click "Cut". Audio Cutter allows you to extract an audio track from a video. This is useful when you want to get a soundtrack from a movie or a music video.



Chapter III - Implementation Phase

In edulang we chose to have only one subject for the demo. Currently the game has one chapter that consists of different scenes. The player is welcomed by the teacher to introduce him to the game, guiding him and telling him what subject he is going to learn.



After the introduction, the teacher then goes on to explain the lesson we choose to teach in this case . المذكر والمؤنث .

The teacher explains how to differentiate between the latter. To help the player understand we added audio source and some animation that could further enhance the experience and avoid boredom.





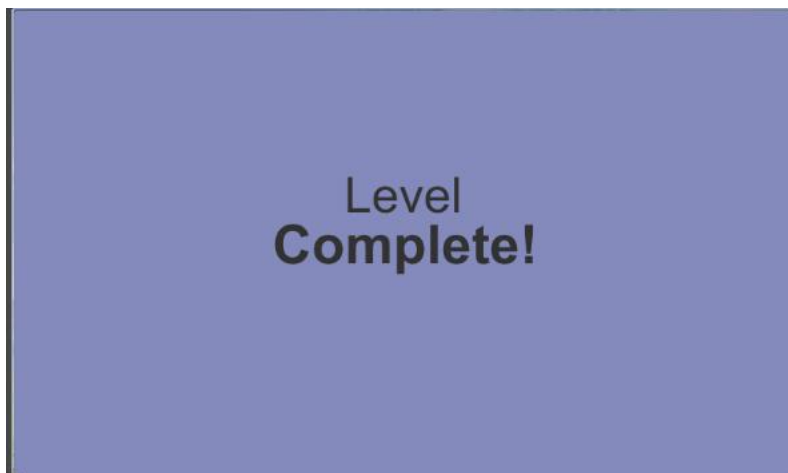
After explaining the basic we move on to a mini quiz guided by us without putting any pressure of the student. The mini game is more of practice exercise than a quiz because the answers are provided by the game manager.



After completing this mini game the player is transitioned to a scene similar to the welcoming scene that congratulates him on completing the mini game. The player is then moved to a mini quiz game that consists of a drag and drop game where the player should match the اسم الاشارة (name of the pointer) with the respective object previously explained in the previous mini game.



If the player completes the game successfully a last scene is shown to inform him that the level is completed successfully.



Chapter IV - Conclusion

In the previous chapters, we considered a variety of topics related to educational games, then we went more in-depth to orient the environment of explanation to our games with the similar applications, after which we displayed the design phase and the conceptual model of the proposed games and finally we graphically illustrated our games and highlighted the educational scope and aim in each. In this chapter, we finalize and present our future plans for the executed games.

IV.1. Conclusions

Educational games are one of the most important games existing in the market. And with the coronavirus issue going around the world many people are shifting to remote taughttiring are relying more and more on devices for education rather than actually going to school which to be the future even after the end of covid-19. This is why this game has alot of potentail. It has the ability to grow and eventually be able to teach much more ages.

In this project, we have presented an educational game cable of teaching some arabic language basics to kids from 1st grade up to 6th grade.

In additio to enhancing this game to support more basics and multiple levels, we aim to add this game to current teaching method in order to support them in the educational path.

IV.2. Future Works

As the proposed game can accommodate a variety of ideas and additional features, in this

section we provide a glance at what we have in mind for future works on this game.

EduLang

1. At first, we are planning to enrich the repository of taught basics which allows teaching more dense content especially more advanced topics.
2. Add multiple levels to add higher levels for more educated player with more knowledge on the subjects explained.
3. We also want the game to support various topics eventually teach all the concepts taught to children at the targeted age.
4. The game should support more fun minigames with multiple levels to show progress for the players.
5. Adding rewards to the players can motivate them to keep learning and stay engaged.

Chapter V - References

Bibliography

Kilian Shawn O'donnell site: "sites.psu.edu" on responses to to Non-Educational Games for Education

Masoud Hashemi , Masoud Azizinezhad, "Teaching English To Children:A Unique, Challenging Experience For Teachers, Effective Teaching Ideas"

Wikipedia : Educational games

Resources

Brackeys

<https://brackeys.com/>