

**Ain Shams University**  
**Faculty of Computer & Information Sciences**

**Cyber Security Program**

**Cyber Learning Adventure (Junior)**

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**Cyber Learning Adventure (Junior)**

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# Acknowledgement

If you want to include thank you notes to any one you should put it here. (The acknowledgement is optional)

# Abstract

The abstract is one page summary of the whole project including: why the project is needed, what are the main features of the project and what are the final results obtained by the developed system.

It’s the most important page in the whole documentation, it should be the last thing you write.

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Note: Always number your figures and include a caption under each one like this. Then if you update the list above it’ll be updated automatically.

When adding a figure, right click on the image -> insert caption.

After you finish the document, write click on the table and choose update field, then update entire table.



**Figure 1- Neural Network general architecture**

Add list of Tables if you have tables in your text in the same manner

# List of Abbreviations

|  |  |  |
| --- | --- | --- |
| Abbreviation | What the abbreviation stands for |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Note: Any abbreviations used throughout the document should be included here. The list should be sorted **alphabetically**.

# Introduction

## 1.1 Motivation

To help children in gaining the necessary awareness to protect themselves against the threats they can face while using the internet because the only available awareness-providing tools are aimed at adults and are far too advanced for children.

## 1.2 Problem Definition

Since the Covid-19 pandemic, kids nowadays spend a lot of time in front of screens on daily basis. And with lack of awareness, children are exposed to a new set of threats as their use of web-based tools, downloading new applications, and reliance on email grows.

## 1.3 Objective

* Offering a gamified and enjoyable way for kids to learn about cyber security threats and attacks.
* Providing a simple, yet efficient ways to report security attacks.
* Implementing practical hands-on experience.

## 1.4 Time Plan

Graphical user interface

Description automatically generated

## 1.5 Document Organization

Include a paragraph for each chapter describing what was discussed in this chapter starting with chapter 2.

# Background

* The field of Cyber Learning Adventure (Junior) is mainly Cyber Security besides multimedia.
* Scientific background related to the project:

-Gamification

-Capture the flag challenges and how they are created

-Cyber threats on kids

-Cyber threat modelling

-How kids use the internet

* A survey of the work done in the field.
* Similar Systems:

-CTFs

-Cyber Talent kids

-Cybersmart challenge

-Introducing a Mobile App to Increase Cybersecurity Awareness in Mena Region

* Technologies used:
* Game Engine

-Unity

* Programming Language

-C#

* Code IDE

-Visual Studio

* Graphics Tool

-Gimp

-Photoshop

# Analysis and Design

## 3.1 System Overview

### 3.1.1 System Architecture

Include a figure of the system architecture and a description of all modules.

You may add Functional and non-functional requirements section –If needed–

### 3.1.2 System Users

1. *Intended Users:*

To whom the system is built, and how each group of users will use the system.

1. *User Characteristics*

What kind of experience or skills are required from the users to be able to operate the project effectively.

## 3.2 System Analysis & Design

### 3.2.1 Use Case Diagram

The use case diagram + fully dressed use cases describing each function of the project if applicable.

### 3.2.2 Class Diagram

The diagram + description of all the main classes if applicable.

### 3.2.3 Sequence Diagram

if applicable

### 3.2.4 Database Diagram

If you are implementing a database include the database schema plus a description of the tables.

# Implementation and Testing

This chapter should include:

* A detailed description of all the functions in the system.

-Player Movement

Where the player can move freely in two directions (left and right) and jump.

-Dialogue System

It is a is a gameplay mechanic where the player interacts with non-player character and the player is given a choice of what to say and makes subsequent choices until the conversation ends.

* A detailed description of all the techniques and algorithms implemented.
* Description of any new technologies used in implementation.
* UI Design and Wireframes
* Testing procedures and levels used

# User Manual

This chapter should describe in details how to operate the project along with screen shots of the project representing all steps.

This chapter should also include an "Installation Guide" that would describe how to install the program, and all required third party tools that needs to be available for the project to run. The installation guide will also be included as a readme file in the CDs delivered at the end of the year.

# Conclusion and Future Work

## 6.1 Conclusion

A complete summary of the whole project along with the results obtained.

The game is divided in two versions, the first version contains different password levels from easy to hard and one sublevel for phishing. It also contains the main menu and about section which shows information about the game. Settings scenes and screen were also created, and it contains reset option to reset the progress of the player. The second version contains the gamified design and UIs of the game.

## 6.2 Future Work

* Implement more levels
* Improve the gamification to make it more enjoyable and attractive for the kids

**References**

* [1]"Screen time 'may harm toddlers'", BBC News, 2019. [Online]. Available: https://www.bbc.com/news/health-47026834. [Accessed: 06- Dec- 2021].
* [2]"Cybersecurity in Education: What Teachers, Parents and Students Should Know | Berkeley Boot Camps", Berkeley Boot Camps, 2021. [Online]. Available: https://bootcamp.berkeley.edu/blog/cybersecurity-in-education-what-teachers-parents-and-students-should-know/. [Accessed: 06- Dec- 2021].
* [3]"Cybertalentskids » CyberTalents", CybertalentKids, 2021. [Online]. Available: https://cybertalentskids.com/. [Accessed: 06- Dec- 2021].
* [4]2021. [Online]. Available: https://www.esafety.gov.au/educators/classroom-resources/cybersmart-challenge. [Accessed: 06- Dec- 2021].
* [5]H. M. Jawad and S. Tout, "IEEE Xplore," in Introducing a Mobile App to Increase Cybersecurity Awareness in MENA, Dubai, 2021. [Accessed: 06- Dec- 2021].
* [6]"Hacking Training For The Best", Hack The Box, 2021. [Online]. Available: https://www.hackthebox.com/. [Accessed: 06- Dec- 2021].
* [7]"OWASP Foundation | Open Source Foundation for Application Security", Owasp.org, 2021. [Online]. Available: https://owasp.org/. [Accessed: 06- Dec- 2021].
* [8]M. Robb, "Common Sense Media," Common Sense Media, 29 October 2019. [Online]. Available: https://www.commonsensemedia.org/blog/tweens-teens-and-phones-what-our-2019-research-reveals#:~:text=A%20majority%20(53%25)%20of,2019%20from%2011%25%20in%202015.. [Accessed 08 November 2021].
* [9]Kaspersky, "Kaspersky," Kaspersky, [Online]. Available: https://usa.kaspersky.com/resource-center/threats/top-seven-dangers-children-face-online. [Accessed 08 November 2021].
* [10]DQ Institute, "DQ Institute," DQ Institute, [Online]. Available: https://www.dqinstitute.org/child-online-safety-index/. [Accessed 08 November 2021].
* [11]C. Li, "Weforum," World Economic Forum, 29 April 2020. [Online]. Available: https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/. [Accessed 08 November 2021].
* [12]J. Johnson, "Statista," 06 May 2021. [Online]. Available: https://www.statista.com/statistics/1189204/us-teens-children-screen-time-daily-coronavirus-before-during/. [Accessed 08 November 2021].
* [13]Unicef, "Unicef," Unicef, 04 February 2021. [Online]. Available: https://www.unicef.org/coronavirus/keep-your-child-safe-online-at-home-covid-19. [Accessed 10 November 2021].
* [14]H. M. Jawad and S. Tout, "IEEE Xplore," in Introducing a Mobile App to Increase Cybersecurity Awareness in MENA, Dubai, 2021.
* [15]I. M.Venter, R. J.Blignaut, K. Renaud and M. A. Venter, "Cyber security education is as essential as “the three R's”," Heliyon, vol. 5, no. 12, 2019.
* [16]F. Quayyum, D. S.Cruzes and L. Jaccheri, "Cybersecurity awareness for children: A systematic literature review," International Journal of Child-Computer Interaction, vol. 30, 2021.