**Chapter 1**

**1.1 Introduction**

**1.1.1 What is ADHD?**

ADHD is one of the most common neurodevelopmental disorders of childhood. It is usually first diagnosed in childhood and often lasts into adulthood. Children with ADHD may have trouble paying attention, controlling impulsive behaviors (may act without thinking about what the result will be), or be overly active.

Attention-deficit/hyperactivity disorder (ADHD) is among the most common neurobehavioral disorders presenting for treatment in children,It carries a high rate of comorbid psychiatric problems such as oppositional defiant disorder (ODD), conduct disorder, mood and anxiety disorders, and cigarette and substance use disorders. Across the lifespan, the social and societal costs of untreated ADHD are considerable, including academic and occupational underachievement, delinquency, motor vehicle safety, and difficulties with personal relationships.

ADHD affects an estimated 4% to 12% of school-aged children worldwide with survey and epidemiologically derived data showing that 4 to 5% of college aged students and adults have ADHD . In more recent years, the recognition and diagnosis of ADHD in adults have been increasing although treatment of adults with ADHD continues to lag substantially behind that of children. In contrast to a disproportionate rate of boys diagnosed with ADHD relative to girls in childhood, in adults, an equal number of men and women with ADHD are presenting for diagnosis and treatment.

## **1.1.2 Causes**

* Blood relatives, such as a parent or sibling, with ADHD or another mental health disorder
* Exposure to environmental toxins — such as lead, found mainly in paint and pipes in older buildings
* Maternal drug use, alcohol use or smoking during pregnancy
* Premature birth

## **1.1.3 Symptoms**

It is normal for children to have trouble focusing and behaving at one time or another. However, children with ADHD do not just grow out of these behaviors. The symptoms continue, can be severe, and can cause difficulty at school, at home, or with friends.

**1.1.4 the most type of attention deficit hyperactivity disorder**

**- Inattentive**

This type has trouble paying attention to details, is easily distracted, often people with it have trouble organizing or finishing tasks.

often forget routine chores and difficulty following instructions or completing tasks.

* Doesn’t pay close attention to details or makes careless mistakes in school or job tasks.
* Has problems staying focused on tasks or activities, such as during lectures, conversations or long reading.
* Does not seem to listen when spoken to (i.e., seems to be elsewhere).
* Does not follow through on instructions and doesn’t complete schoolwork, chores or job duties (may start tasks but quickly loses focus).
* Has problems organizing tasks and work (for instance, does not manage time well; has messy, disorganized work; misses deadlines).

## **1.1.5 How to Improve Concentration in Children with ADHD**

### Get the medication right.

### Establish eye contact.

### Practice skills step by step

### Play attention-boosting games

### Fit the task to the child

1. Make learning active.

### Make a suitable work space.

### Take frequent breaks.

### Use self-monitoring and positive self-talk

**1.2 Problem Statement**

There are many children who are unable to absorb and benefit from educational abilities because they have a learning disability due to ADHD.

Attention deficit hyperactivity disorder(ADHD) has a significant impact on a child's absorptive capacity, which can thus weaken the child's part of the work effectively, both socially and academically.

**1.2.1. How does awareness of hyperactivity and attention deficit disorder (ADHD) affect the future of a child with this condition?**

Knowledge and awareness of hyperactivity and attention deficit disorder (ADHD) is very important because it helps in the early diagnosis of the condition and thus determines the appropriate treatment method.

The step of choosing the appropriate treatment for a child with attention deficit and hyperactivity(ADHD) is very sensitive and important; The proper follow-up and management of the situation helps develop the child's compensatory skills, which the child effectively uses to deal with areas of disability.

But one of the problems with the diagnosis of ADHD is that it cannot be diagnosed and known by a laboratory examination, and there are no precise criteria for confirming the diagnosis of the child with ADHD.

**1.2.2 Criteria for Attention Deficit Hyperactivity Disorder (ADHD) :**

At present, the diagnosis of ADHD is based on criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) classifies ADHD into two types: the inattentive type and the hyperactive-impulsive type. Each type has nine behavioral characteristics that indicate them. To diagnose a child as having ADHD, he/she must have at least six characteristics of inattentive type, hyperactivity-impulse, or mixture of the two types.

So from what we talked about earlier we conclude that there are three types of ADHD and they are :

**1. Hyperactive/Impulsive ADHD:**

It’s the classic ADHD in people's minds that it affects the patient in a way which made him/her overly energetic,

for example as the disruptive -9 year old- child who loves to jump off dangerously high things and seems to be driven by a motor.

A person with this Hyperactive/Impulsive ADHD will exhibit six of these nine symptoms:

1. Often fidgets with or taps hands or feet or squirms in their seat.
2. Often leaves a seat in situations when remaining seated is expected for example leaving his or her place in the classroom.
3. Often runs about or climbs in situations where it is inappropriate.
4. Often unable to play or engage in leisure activities quietly.
5. Is often “on the go,” acting as if “driven by a motor” (others may say the patient is restless, fidgety, or difficult to keep up with).
6. Often talks excessively.
7. Often blurts out an answer before a question has been completed.
8. Often has difficulty waiting his or her turn.
9. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people’s things without asking or receiving permission).

**2. Inattentive ADHD :**

In this type the patient suffers from lack of focus and attention which are regarded as the primary symptoms, not hyperactivity.

The next story will explain the meaning of inattentive ADHD in a better way, it’s a story about a child called Tammy that has ADHD and specifically the inattentive type.

**3. Combined Type ADHD:**

The last type is a mixture of the two previous types, it happens when inattention, hyperactivity, and impulsivity go hand-in-hand.

**4. the most diagnosed type of attention deficit hyperactivity disorder**

**is the Inattentive type**

This type has trouble paying attention to details, is easily distracted, often people with it have trouble organizing or finishing tasks. often forget routine chores and difficulty following instructions or completing tasks.

1. Doesn’t pay close attention to details or makes careless mistakes in school or job tasks.
2. Has problems staying focused on tasks or activities, such as during lectures, conversations or long reading.
3. Does not seem to listen when spoken to (i.e., seems to be elsewhere).
4. Does not follow through on instructions and doesn’t complete schoolwork, chores or job duties (may start tasks but quickly loses focus).
5. Has problems organizing tasks and work (for instance, does not manage time well; has messy, disorganized work; misses deadlines).
6. Often fails to give close attention to details in schoolwork, or during other activities.
7. Has difficulty remaining focused during tasks, classes, conversations, or lengthy reading.
8. Often children’s mind seems elsewhere, even in the absence of any obvious distraction.
9. starts tasks but quickly loses focus and fails to finish it and does not follow through on instructions.
10. Often avoids and dislikes engaging in tasks that require sustained mental effort.
11. Often loses things necessary for tasks or activities such as school materials, pencils, books or tools.
12. Often easily distracted by extraneous stimuli.
13. Often forgetful in daily activities.

The next story is a true story which will illustrate more the Inattentive type of ADHD.

# **1.2.3. Tammy’s Story**

Tammy, an 8-year-old third grader, was halfway through the second grading period when her parents asked for another conference with her teacher. Her grades were very low with failure to complete class assignments and inconsistent performance on homework.

This wasn't the first time the school had raised concerns. Tammy was struggling with reading at the end of first grade in spite of testing by the school guidance counselor which showed very good ability. At the time Tammy complained that all the noises in the classroom were distracting. Further evaluation at that time through her pediatrician had suggested a possible diagnosis of ADHD, primarily inattentive type. Since there were no problems with hyperactivity her parents, especially her father, were reluctant to consider any medications. They got some self-help books to learn skills to help Tammy with her school assignments and address her "smart mouth" responses to adults. There was progress but her father complained that Tammy's mother was not consistent with discipline. Her mother argued that it didn't seem right that Tammy was always grounded and prohibited from all of her favorite activities.

To help identify Tammy’s difficulties and to address the disagreement between the parents regarding the correct approach, Tammy was referred to a child psychiatrist. That evaluation confirmed the diagnosis of ADHD. The parents’ efforts at providing Tammy with structure for her schoolwork were helpful, but they all agreed this was not enough. Her father's position had softened after he talked with his sister whose son also has ADHD and had a good response to treatment with medication. She also reminded him of the struggles he had in elementary school and all the times he was sent to the office.

In a session that included her parents Tammy talked about how tired she was of being in trouble all of the time and about how discouraged she was about her school efforts. She cried herself to sleep many nights.

A decision was made for treatment with stimulant medication. Tammy had an expected response. She was especially pleased when she was moved to a higher reading group and she was picked for her school basketball team. Her medication was tailored for school time since her evening and weekend behaviors were not a problem.

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**1.3 Objectives**

# **1.3.1 the technical side:**

1. Create as desktop app with all its capabilities
2. It has all the capabilities of the Desktop Apps.
3. Fast playing performance.
4. Good and stable storage.
5. Do not depend on the Internet.
6. The game starts with a learn & test phase for ADHD basic information for the Adults.
7. Contain 6 different Games, with different learning goals.
8. Contain 6 different learning materials for Math & Alphapts.
9. The 6 Games must have to be infinite playing games with different Goal and Difficult level at every single time.
10. The game contains a video tutorial before each level
11. At the end of the playing, there will be a Final Report that contains the Result Analysis of the child’s play and learning.
12. The game contains a shop, to buy items with game coins gained on every level.

**1. Create as desktop app with all its capabilities**

* the benefit of using unity to create the Adhd game, Unity now supports

over 20 different target platforms for deploying, while its most popular

platform is the PC so the game is created as a desktop app.

**2. Fast playing performance.**

* The game performance is fast and there are no malfunctions or suspensions

**3. Good and stable storage.**

* Easy to store and does not take up much space.

**4. Do not depend on the Internet.**

* The child will not need an internet connection to be able to open the game, so he can open the game anywhere and anytime.

**5. The game starts with a learn & test phase for ADHD basic information for the Adults.**

* So that the child can log into the game a parent needs to read

information about ADHD to understand what the disease is, its

symptoms and whether or not their child has it, and then reading each

screen there are mcq questions that the parent must answer and they

exceed 80% From answering questions to be able to create an account

on the game.

**6. Contain 6 different Games, with different learning goals.**

* Our game contains 6 different educational games, the child will learn math and letters from the game.

**7. Contain 6 different learning material for Math & Alphapts.**

* Our game contains 6 games with different content, four of them are for

Math, which are teaching numbers, addition, subtraction and

multiplication, and a game to teach English letters.

**8. The 6 Games must have to be infinite, playing games with different Goal and Difficult level at every single time.**

* Our game is infinite and continues with the child until the age of 15

years and with each level the difficulty of the game increases and thus

the child's concentration increases so that he can overcome the levels.

**9. The game contains a video tutorial before each level.**

* Before each level, the child must watch a video in order to learn the

content of the level before starting the game, and the child will not be

able to skip the video or start the game before watching the full video.

**10. At the end of the playing, there will be a Final Report that contains the Result Analysis of the child’s play and learning.**

* The report contains the child’s score at each level, and thus it becomes

clear to us the child’s focus in each educational content, and whether

there is a level he should repeat or not, and whether he came out with

the expected result for him according to his educational level and it will

also become clear to us whether the game helped him or not.

**11. The game contains a shop, to buy items with games coins gained on every level.**

* During the game the child can collect coins if he manages to exceed the

required during each level and with these coins he can buy the items he

needs from the store for each level such as changing the character.

**1.3.2 User Experiences Objectives:**

1. To be an interactive game.
2. A child from 5 to 15 years old can use it.
3. The child can use it on his own without difficulty.
4. Helps children reduce attention deficit.

## **1.3.3 the conditions:**

1. The child has attention deficit hyperactivity disorder.
2. Not less than 5 years old, not older than 15.
3. He must be accompanied by a supervisor to register the account.
4. The supervisor must be one of the parents or a teacher of his own.
5. The supervisor must pass 80% of the test to pass the account registration process.

1.4. Impact in business

1.4.1. impacts on:

1. Business (Us)
2. Child (Main user)
3. Parents
4. Education
5. Society

1.4.2. What effects will happen if our project is 1. implemented in reality?

1. The academic level of ADHD Children will improve.
2. Parents will understand and know more about ADHD and how to deal with their children.
3. An agreement will be made with training centers to treat ADHD and how to benefit from our project.
4. There will be a new generation that will understand more about ADHD.
5. We will follow how users can get the most benefit.
6. At the end of the game a parent will take a report of how his child plays the game and what are the strengths & weakness points.

1.5. Ways of Marketing

1.5.1. How to make profit?

1. **Create Video Content**

* If the target audience does not know about the game, how can they play it? This is one of the reasons why they made a video of its gameplay along with a promotional video.

1. **Build An Online Presence**

* It means to make a social media profile on different profiles and share your content with the readers. to reach out to the target audience.

1. **Join Social Media Blogs**

* Along with making social media profiles on different platforms, we need to join different gaming blogs as well. Most of the blog sites will allow us to promote our game, which will increase our game’s exposure.

1. **Cross-Promote the Game**

* We will promote our project via different apps. It could imply that a free application without a clear income model can be made into a channel for cross-advertisement for money generating games.

1. **Get Reviews**

* Getting reviews about the game will also encourage people to buy and download the game.

1. **Online Marketing**

* by sharing our project or some of our games,

These links will help us to share our marketing of projects.

1. **Offline Marketing**

* Awareness marketing by making offline events with faculty of science specialists.

1. **Feasibility Study**

* Whatever we think need not be feasible .It is wise to think about the feasibility of any problem we undertake. Feasibility is the study of impact, which happens in the organization by the development of a system. The impact can be either positive or negative. When the positives nominate the negatives, then the system is considered feasible. Here the feasibility study can be performed in two ways such as technical feasibility and Economical Feasibility.

1. **Technical Feasibility.**

* We can strongly say that it is technically feasible, since there will not be much difficulty in getting required resources for the development and maintaining the system as well. All the resources needed for the development of the software as well as the maintenance of the same is available in the organization here we are utilizing the resources which are available already.

1. **Economic Feasibility**

* Development of this application is highly economically feasible .The organization needed not spend much m money for the development of the system already available. The only thing is to be done is making an environment for the development with an effective supervision. If we are doing so , we can attain the maximum usability of the corresponding resources .

**1.6 Conclusion**

* **ADHD**
* ADHD stands for “attention deficit hyperactivity disorder”. It is a medical condition in which a person has differences in brain development and brain activity.
* People with ADHD may also have trouble focusing their attention on a single task or sitting still for long periods of time.

* **ADHD Type**
* Inattentive: This type has trouble paying attention to details
* Hyperactive: tendency toward impulsiveness
* Combined: It is a mix between ADHD intention & hyperactive

* **Our game contains**
* learning phase and testing basic information on ADHD for adults.
* a video tutorial before each level
* 6 different learning materials for Math & Alphapts.
* a Final Report that contains the Result Analysis of the child’s play and learning.
* a shop, to buy items with game coins gained on every level.
* **Who can use our game**
* A child who is not less than 5 years old and not more than 15 years old
* A child with an attention deficit.
* **Ways of Marketing**
* Create Video Content.
* Build An Online Presence.
* Join Social Media Blogs.
* Get Reviews.
* Cross-Promote the Game.