



ISDM (INDEPENDENT SKILL DEVELOPMENT MISSION)

INTRODUCTION TO AI: WHAT IS ARTIFICIAL INTELLIGENCE?

CHAPTER 1: UNDERSTANDING ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence (AI) is the **simulation of human intelligence** by machines and computer systems. AI enables machines to **think, learn, and make decisions** based on data and algorithms.

Key Features of AI:

- ✓ **Learning:** AI learns from data using algorithms (Machine Learning).
- ✓ **Problem-Solving:** AI analyzes data to provide solutions.
- ✓ **Automation:** AI performs tasks **without human intervention**.
- ✓ **Adaptability:** AI improves its performance over time.

➡ **Example:** Virtual assistants like **Siri, Alexa, and Google Assistant** use AI to understand and respond to voice commands.

CHAPTER 2: HISTORY & EVOLUTION OF AI

The concept of **Artificial Intelligence** dates back to **the 1950s**, when scientists began developing machines that could mimic human intelligence.

Milestones in AI Development:

- **1956:** AI was first introduced at the **Dartmouth Conference**.
- **1997:** IBM's **Deep Blue** defeated world chess champion **Garry Kasparov**.
- **2011:** IBM's **Watson AI** won the game show **Jeopardy!**
- **2016:** Google's **AlphaGo AI** defeated a human Go champion.
- **Today:** AI powers **chatbots, self-driving cars, and smart devices**.

CHAPTER 3: TYPES OF ARTIFICIAL INTELLIGENCE

AI is categorized into **three types** based on its capabilities:

3.1 Narrow AI (Weak AI)

- AI designed for **specific tasks**.
- Does not have general intelligence.
-  **Example:** Siri, Google Translate, Chatbots.

3.2 General AI (Strong AI)

- AI that can **think and learn like a human**.
- Can perform **any intellectual task** that a human can.
-  **Example:** Not yet developed but is the goal of AI research.

3.3 Super AI

- AI that surpasses **human intelligence** in all aspects.
- Currently **theoretical** and not yet created.
-  **Example:** AI in **science fiction movies** (e.g., Jarvis from Iron Man).

CHAPTER 4: HOW DOES AI WORK?

AI systems rely on **data, algorithms, and computing power** to function.

4.1 Machine Learning (ML)

- AI learns from **large amounts of data** and improves its accuracy.
-  **Example:** Netflix recommends movies based on your watching history.

4.2 Deep Learning

- A more advanced AI technique using **neural networks**.
-  **Example:** AI detecting diseases from medical scans.

4.3 Natural Language Processing (NLP)

- AI understands and processes **human language**.
 -  **Example:** ChatGPT, Google Assistant, and Voice Recognition.
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CHAPTER 5: APPLICATIONS OF AI IN DAILY LIFE

AI is **everywhere** around us!

5.1 AI in Smartphones

- **Voice Assistants** (Siri, Alexa, Google Assistant).
- **Face Recognition** to unlock phones.

5.2 AI in Healthcare

- AI helps **diagnose diseases** from medical images.

- AI-powered **chatbots assist patients** with medical queries.

5.3 AI in Business & Finance

- AI-powered **stock market predictions**.
- Fraud detection in **online transactions**.

5.4 AI in Self-Driving Cars

- AI helps cars **detect obstacles and navigate roads safely**.
-  **Example: Tesla's Autopilot feature.**

CHAPTER 6: BENEFITS AND CHALLENGES OF AI

6.1 Benefits of AI

-  **Increases efficiency** – AI automates repetitive tasks.
-  **Reduces human error** – AI calculations are highly accurate.
-  **Improves decision-making** – AI analyzes vast amounts of data quickly.
-  **Enhances convenience** – AI-powered assistants make life easier.

6.2 Challenges of AI

-  **Job displacement** – AI automation may replace human jobs.
-  **Ethical concerns** – AI can be misused for surveillance.
-  **Bias in AI models** – AI decisions can be biased if trained on biased data.
-  **Security risks** – AI-powered cyber attacks are a potential threat.

CHAPTER 7: CASE STUDY – AI IN EDUCATION

Scenario:

A school introduces AI-powered **personalized learning** for students.

Solution:

- **AI tutors** provide customized lessons.
- **AI chatbots** answer students' questions.
- AI analyzes student **learning patterns** and suggests improvements.

Outcome:

- ✓ Improved student engagement.
- ✓ Faster learning and better understanding of topics.
- ✓ Teachers get insights into student performance.

CHAPTER 8: EXERCISE

8.1: Multiple Choice Questions

1. What is the **goal of Artificial Intelligence?**
 - (a) To create machines that think like humans
 - (b) To replace all human jobs
 - (c) To create robots only for entertainment
 - (d) To slow down technological advancements
2. Which of these is an **example of Narrow AI?**
 - (a) A robot that can think like a human
 - (b) Google Translate
 - (c) A self-aware AI that has emotions
 - (d) A super-intelligent AI

3. What does **Machine Learning (ML)** help AI do?

- (a) Learn from data and improve itself
- (b) Read people's thoughts
- (c) Replace human emotions
- (d) Control the internet

8.2: Practical Task

📌 **Research and answer the following:**

1. Find two real-world examples of AI in **healthcare**.
2. Explain how AI **helps businesses make decisions**.
3. List three AI-powered apps you use daily.

8.3: Short Answer Questions

1. What are the **three types of AI**?
2. How does **AI-powered voice recognition work**?
3. What are two **challenges of AI**?

EXPLORING CHATGPT & DEEPSEEK AI FOR LEARNING

CHAPTER 1: INTRODUCTION TO AI-POWERED LEARNING

Artificial Intelligence (AI) is transforming the way we learn and access information. **ChatGPT and DeepSeek AI** are two advanced AI-powered tools that assist students, educators, and professionals in **learning, research, and productivity**.

Key Benefits of AI in Learning

- ✓ Instant access to information for research and studies.
- ✓ Personalized learning experiences based on individual needs.
- ✓ Interactive assistance for problem-solving and brainstorming.
- ✓ Automation of repetitive tasks like summarizing and note-taking.
- ✓ Language and writing support for essays, reports, and coding.

Both **ChatGPT and DeepSeek AI** offer unique features that enhance the **learning process** across various fields.

CHAPTER 2: UNDERSTANDING CHATGPT FOR LEARNING

Chapter 2.1: What is ChatGPT?

ChatGPT is an **AI-powered chatbot developed by OpenAI** that can generate human-like text. It helps users by **answering questions, explaining concepts, and generating content** across various topics.

Chapter 2.2: How ChatGPT Enhances Learning

1. **Concept Explanation** – Helps in understanding **complex subjects** (e.g., science, math, history).

2. **Homework Assistance** – Provides solutions to **assignments** and **problem-solving**.
3. **Essay Writing & Research** – Assists in **drafting essays, summaries, and reports**.
4. **Programming Help** – Offers coding assistance in **Python, Java, C++, and more**.
5. **Language Learning** – Improves vocabulary and **corrects grammar** in multiple languages.

Chapter 2.3: Using ChatGPT Effectively

- Be specific when asking questions for better responses.
- Use it as a **study guide**, not as a replacement for critical thinking.
- Verify responses using **reliable sources** for accuracy.
- Utilize prompts like:
 - "Explain Newton's laws of motion in simple terms."
 - "Summarize the key themes in Shakespeare's Hamlet."
 - "Generate a Python program for sorting numbers."

CHAPTER 3: UNDERSTANDING DEEPSEEK AI FOR LEARNING

Chapter 3.1: What is DeepSeek AI?

DeepSeek AI is an **advanced AI model** designed for **text generation, content understanding, and research assistance**. It specializes in **academic writing, coding, and problem-solving**.

Chapter 3.2: How DeepSeek AI Supports Learning

1. **Advanced Research Assistance** – Helps in **academic writing** and literature review.
2. **Summarization and Note-Taking** – Converts long texts into short summaries.
3. **Mathematical Problem Solving** – Provides **step-by-step explanations**.
4. **Programming Support** – Assists with **debugging and algorithm explanations**.
5. **Scientific Analysis** – Aids in **data interpretation and hypothesis formation**.

Chapter 3.3: Using DeepSeek AI Effectively

- Use it for **in-depth research and academic writing**.
- Apply it to **complex problem-solving** in math and science.
- Ask detailed prompts like:
 - "*Summarize the key findings of Einstein's theory of relativity.*"
 - "*Explain the differences between machine learning and deep learning.*"
 - "*Provide a detailed breakdown of an HTML and CSS web page structure.*"

CHAPTER 4: COMPARING CHATGPT & DEEPSEEK AI

| Feature | ChatGPT | DeepSeek AI |
|-------------------------------------|--|--|
| Best For | General learning, quick answers, content writing | Research, technical writing, complex problem-solving |
| Concept Explanation | Simple and detailed responses | More advanced analysis |
| Programming Help | Code generation & debugging | Algorithmic problem-solving |
| Academic Writing | Drafting & essay writing | Research paper analysis |
| Mathematical Problem Solving | Basic calculations & concepts | Advanced problem-solving |
| Summarization | General text summarization | More structured & in-depth summaries |

Both AI tools complement each other, and **using them together** enhances learning efficiency.

CHAPTER 5: CASE STUDY – USING AI FOR EXAM PREPARATION

Scenario:

A student preparing for **a science exam** needs help with **concepts, problem-solving, and revision notes**.

Solution:

- Used ChatGPT to summarize topics and create **flashcards**.
- Used DeepSeek AI to generate **detailed research notes and formulas**.

- Both tools helped in practice questions and coding assignments.

Outcome:

- ✓ Improved concept clarity through AI explanations.
- ✓ Organized study material for efficient revision.
- ✓ Faster problem-solving and better exam preparation.

CHAPTER 6: EXERCISE**6.1: Multiple Choice Questions**

1. What is the main function of ChatGPT?
 - (a) Image editing
 - (b) Text generation and explanations
 - (c) Video processing
 - (d) Music production
2. Which AI tool is best for mathematical problem-solving?
 - (a) ChatGPT
 - (b) DeepSeek AI
 - (c) Photoshop AI
 - (d) None of the above
3. How can ChatGPT help in language learning?
 - (a) Corrects grammar and spelling
 - (b) Provides vocabulary suggestions
 - (c) Translates text into different languages

- (d) All of the above

6.2: Practical Task

- Use **ChatGPT** to generate a summary of a topic from your textbook.
- Use **DeepSeek AI** to create **a structured research outline** for a project.
- Compare their results and **identify the best tool for your learning needs**.

6.3: Short Answer Questions

- How does ChatGPT help with **programming and coding**?
- What are the advantages of using **AI for research**?
- Compare the learning benefits of **ChatGPT vs. DeepSeek AI**.

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How AI ASSISTS IN WRITING, RESEARCH, AND CREATIVITY

CHAPTER 1: INTRODUCTION TO AI IN WRITING, RESEARCH, AND CREATIVITY

Artificial Intelligence (AI) is transforming how we write, research, and create. AI-powered tools assist in generating content, analyzing information, and enhancing creative projects. Writers, students, and professionals use AI to **increase efficiency, accuracy, and innovation** in their work.

Key Benefits of AI in Writing, Research, and Creativity

- ✓ **Faster content generation** – AI helps in writing articles, blogs, and reports.
- ✓ **Accurate research and data analysis** – AI gathers, summarizes, and fact-checks information.
- ✓ **Enhanced creativity** – AI assists in music, art, and content creation.
- ✓ **Grammar and plagiarism checks** – AI ensures error-free writing.
- ✓ **Brainstorming and idea generation** – AI suggests creative concepts and solutions.

AI tools like **ChatGPT, Grammarly, DeepSeek AI, and DALL·E** are revolutionizing writing, research, and creativity across various fields.

CHAPTER 2: AI IN WRITING

AI-powered writing tools help users create **structured, grammatically correct, and engaging content**.

Chapter 2.1: AI Writing Assistants

AI tools generate and refine text for **essays, blogs, reports, and professional emails.**

📌 Popular AI Writing Tools:

- **ChatGPT** – Generates content, summaries, and creative text.
- **Grammarly** – Checks grammar, spelling, and clarity.
- **QuillBot** – Paraphrases and rewrites text effectively.

Chapter 2.2: How AI Helps in Writing

- ✓ **Generates high-quality content** – AI provides structured paragraphs.
- ✓ **Improves grammar and readability** – AI suggests better sentence structures.
- ✓ **Paraphrases and rewrites text** – AI simplifies complex sentences.
- ✓ **Formats content professionally** – AI assists in writing emails, reports, and resumes.

📌 Example:

- **Task:** "Write a professional email requesting leave."
- **AI-generated response:**

Subject: Request for Leave – [Your Name]

Dear [Manager's Name],

I hope you are doing well. I am writing to formally request leave from **[Start Date]** to **[End Date]** due to **[Reason]**. I will ensure all pending tasks are completed before my leave.

Please let me know if you need any additional information.

Best regards,
[Your Name]

CHAPTER 3: AI IN RESEARCH

AI simplifies **data collection, analysis, and citation** for researchers and students.

Chapter 3.1: AI Tools for Research

📌 Popular AI Research Tools:

- **DeepSeek AI** – Finds and summarizes research papers.
- **Elicit AI** – Helps in literature reviews and academic research.
- **Google Scholar AI** – Searches for reliable academic sources.

Chapter 3.2: How AI Helps in Research

- ✓ **Summarizes research papers** – AI extracts key points from long articles.
- ✓ **Finds credible sources** – AI suggests high-quality references.
- ✓ **Checks for plagiarism** – AI ensures research is original.
- ✓ **Translates and simplifies content** – AI helps in understanding complex terms.

📌 Example:

- **Task:** “Find recent research on AI in medicine.”
- **AI-generated response:**
 - Suggests **academic papers and research journals**.
 - Summarizes key findings **without reading full papers**.
 - Provides proper **citations and references**.

CHAPTER 4: AI IN CREATIVITY

AI enhances **art, music, storytelling, and graphic design** by providing inspiration and automation.

Chapter 4.1: AI Tools for Creativity

📌 Popular AI Creativity Tools:

- **DALL·E** – Generates AI-created images and artwork.
- **Runway AI** – Assists in video and animation production.
- **AIVA** – Composes AI-generated music.

Chapter 4.2: How AI Helps in Creativity

- ✓ **Generates artwork from text descriptions** – AI creates realistic and abstract images.
- ✓ **Helps in storytelling** – AI suggests story ideas and plots.
- ✓ **Creates background music** – AI composes music based on mood and theme.
- ✓ **Enhances video editing** – AI automates video cutting and effects.

📌 Example:

- **Task:** “Create an image of a futuristic city.”
- **AI-generated response:**
 - Produces a **high-resolution digital painting** of a sci-fi city.
 - Suggests **color palettes and design styles**.

CHAPTER 5: CASE STUDY – AI-ASSISTED WRITING AND RESEARCH

Scenario:

A student needs to write a **5-page research paper on climate change** but struggles with time constraints.

Solution:

- ✓ Used **ChatGPT** to create an outline and key arguments.
- ✓ Used **DeepSeek AI** to find reliable academic sources.
- ✓ Used **Grammarly** to check grammar and plagiarism.
- ✓ Used **QuillBot** to rephrase complex sentences.

Outcome:

- **Faster completion of the research paper.**
- **Well-structured, fact-checked, and plagiarism-free content.**
- **Improved writing quality and clarity.**

CHAPTER 6: EXERCISE

6.1: Multiple Choice Questions

1. Which AI tool is best for checking grammar mistakes?
 - (a) ChatGPT
 - (b) Grammarly
 - (c) DALL·E
 - (d) AIVA

2. How does AI assist in research?
 - (a) Writes personal emails
 - (b) Searches academic sources and summarizes key points
 - (c) Composes music

- (d) Creates artwork
3. What is the main function of DALL-E?
- (a) AI-powered image generation
 - (b) Text-to-speech translation
 - (c) Scientific research assistance
 - (d) Code debugging

6.2: Practical Task

👉 **Use AI tools for the following tasks:**

1. Use ChatGPT to write a **300-word essay on renewable energy.**
2. Use DeepSeek AI to find the latest research on **AI in healthcare.**
3. Use DALL-E to create an AI-generated image of a **futuristic city.**

6.3: Short Answer Questions

- What are **three ways AI assists in writing?**
- How does AI improve **creativity in music and art?**
- Name two AI-powered **research tools** and their uses.

INTRODUCTION TO BLOCK-BASED CODING (SCRATCH)

CHAPTER 1: INTRODUCTION TO BLOCK-BASED CODING

1.1 What is Block-Based Coding?

Block-based coding is a **visual programming method** where users drag and drop blocks to create code, rather than writing text-based programming languages. It is designed to be **simple, engaging, and beginner-friendly**, making it ideal for students and new programmers.

1.2 Why Use Block-Based Coding?

- ✓ **Easy to learn** – No syntax errors, as blocks fit together like a puzzle.
- ✓ **Visual & Interactive** – Helps beginners understand coding logic through animation.
- ✓ **Encourages creativity** – Users can build games, animations, and interactive stories.
- ✓ **Foundation for real programming** – Introduces core programming concepts before moving to text-based coding.

1.3 Examples of Block-Based Coding Platforms

- **Scratch** – The most popular beginner-friendly coding platform.
- **Blockly** – Developed by Google, used in educational apps.
- **MIT App Inventor** – For creating mobile applications.
- **Tynker** – Used for teaching coding in schools.

In this study material, we will focus on **Scratch**, a widely used **block-based coding platform**.

CHAPTER 2: WHAT IS SCRATCH?

2.1 Understanding Scratch

Scratch is a **free, web-based** programming platform developed by **MIT** to teach coding through **block-based programming**. It allows users to create **animations, games, stories, and interactive projects**.

2.2 Key Features of Scratch

- **Drag-and-Drop Blocks** – No need to type code.
- **Sprites & Backgrounds** – Characters and scenes to create interactive projects.
- **Sound & Animation** – Add music and movement to projects.
- **Sharing Community** – Users can share projects with others online.

2.3 Getting Started with Scratch

1. Visit scratch.mit.edu.
2. Click "Join Scratch" to create an account (optional).
3. Click "Create" to open the Scratch coding editor.

CHAPTER 3: SCRATCH INTERFACE & COMPONENTS

3.1 Scratch Workspace Overview

The Scratch editor consists of:

| Section | Description |
|---------|---|
| Stage | Displays the project (animations, games). |

| | |
|-----------------------|---|
| Sprites Panel | Lists characters and objects in the project. |
| Blocks Palette | Contains coding blocks (Motion, Events, Control, etc.). |
| Scripts Area | Where you drag and connect blocks to create code. |

3.2 Understanding Sprites & Backdrops

- **Sprites** are the characters or objects in a Scratch project.
- **Backdrops** are the backgrounds that set the scene.

Adding a Sprite:

1. Click the **Choose a Sprite** button.
2. Select a character from the Scratch library.

Changing the Backdrop:

1. Click the **Backdrops** tab.
2. Select a background from the library.

CHAPTER 4: BASIC CODING BLOCKS IN SCRATCH

4.1 Types of Blocks in Scratch

Scratch uses different **color-coded blocks** for various functions:

| Block Category | Function | Example |
|-----------------------|--------------------|-------------------|
| Motion (Blue) | Moves the sprite | Move 10 steps |
| Looks (Purple) | Changes appearance | Say "Hello" |
| Sound (Pink) | Adds sounds | Play sound "Meow" |

| | | |
|-----------------------------|-----------------------|---------------------------|
| Events (Yellow) | Starts a script | When green flag clicked |
| Control (Orange) | Loops and conditions | Repeat 10 times |
| Sensing (Light Blue) | Detects inputs | If touching mouse-pointer |
| Operators (Green) | Performs calculations | Pick random 1 to 10 |

4.2 Creating Your First Scratch Project

1. Click "**Create**" to open the Scratch editor.
2. Add a **sprite** (character).
3. Drag the "**When green flag clicked**" block from **Events**.
4. Add a "**Move 10 steps**" block from **Motion**.
5. Click the **green flag** to run the program! 

CHAPTER 5: USING LOOPS & CONDITIONALS IN SCRATCH

5.1 Using Loops in Scratch

Loops help repeat actions **without rewriting the same code**.

Example: Making a Sprite Move Continuously

1. Drag the "**When green flag clicked**" block.
2. Attach the "**Forever**" block from **Control**.
3. Inside the loop, add "**Move 10 steps**" from **Motion**.

Now, the sprite will move endlessly until stopped!

5.2 Adding Conditional Statements

Conditional statements help the program make decisions using "if-else" logic.

Example: If the Sprite Touches the Edge, Turn Around

1. Drag "When green flag clicked" block.
2. Add "Forever" block.
3. Inside, add "If touching edge, then turn 180°" block from **Sensing & Motion**.

Now, the sprite **bounces back** when it touches the screen edge!

CHAPTER 6: MAKING A SIMPLE SCRATCH GAME

6.1 Steps to Create a Simple Game (Catch the Apple 🍎)

1. Setting Up the Game Environment

- Add a **sprite** (a character like a cat 😺).
- Add an **apple sprite** (object to catch).
- Select a **background** (like a park or sky).

2. Coding the Apple to Fall

1. Drag "When green flag clicked".
2. Add "Forever" block.
3. Inside, add "Change y by -10" (makes the apple fall).
4. Add "If touching ground, go back to top".

3. Moving the Player Left & Right

1. Drag "When right arrow key pressed".
2. Add "Change x by 10" (moves right).

3. Repeat for left arrow key with "Change x by -10".

4. Scoring System

1. Add a **variable** called "Score".

2. If the player catches the apple, add "Change Score by 1".

🚀 Now, test your game and play it! 🎮

CHAPTER 7: CASE STUDY – SCRATCH IN EDUCATION

Scenario:

A school is introducing **coding lessons** for beginners using Scratch.

Solution:

- **Students create animations** to tell interactive stories.
- **Teachers use Scratch** for explaining math and logic.
- **Collaborative projects** improve problem-solving skills.

Outcome:

- ✓ **Students learn coding easily** through interactive projects.
- ✓ **Creativity & logic skills improve** through hands-on practice.
- ✓ **Engaging classroom experience** with visual programming.

CHAPTER 8: EXERCISE

8.1 Multiple Choice Questions

1. What is **Scratch** used for?

- (a) Text-based coding
- (b) Block-based coding

- (c) 3D animation
 - (d) None of the above
2. Which **Scratch block category** is used for movement?
- (a) Events
 - (b) Motion
 - (c) Looks
 - (d) Control
3. What is the purpose of the "**Forever**" block?
- (a) Stops the program
 - (b) Runs the code only once
 - (c) Repeats the code endlessly
 - (d) Changes the sprite's size

8.2 Practical Task

- Create a **simple Scratch animation** where a sprite moves and says "Hello!".
- Build a **basic game** where a character catches a falling object.

8.3 Short Answer Questions

- What are **the advantages of block-based coding**?
- How do **loops and conditionals** work in Scratch?
- Explain the steps to **create a moving sprite in Scratch**.

CREATING A SIMPLE ANIMATION USING SCRATCH

CHAPTER 1: INTRODUCTION TO SCRATCH AND ANIMATION

1.1 What is Scratch?

Scratch is a beginner-friendly **visual programming language** designed for creating animations, games, and interactive stories. It is widely used in **schools and coding programs** to teach programming concepts using **drag-and-drop blocks** instead of written code.

1.2 Why Use Scratch for Animation?

- ✓ **Easy to Learn** – Uses a **block-based interface** with no coding required.
- ✓ **Interactive & Fun** – Enables creative **storytelling and game design**.
- ✓ **Encourages Logical Thinking** – Helps in **understanding coding concepts** like loops and events.
- ✓ **Free to Use** – Available online at scratch.mit.edu.

1.3 Key Elements of Scratch

- **Sprites** – Characters or objects that move in animations.
- **Stage** – The background where the animation takes place.
- **Blocks** – Drag-and-drop commands that control sprites.
- **Scripts** – A sequence of blocks that define sprite actions.

CHAPTER 2: GETTING STARTED WITH SCRATCH

2.1 Accessing Scratch

1. Open a web browser and go to scratch.mit.edu.
2. Click "Join Scratch" to create an account (optional but recommended).
3. Click "Create" to start a new project.

2.2 Understanding the Scratch Interface

- **Sprites Pane** – Shows all characters/objects in the project.
- **Blocks Palette** – Contains different coding blocks (motion, looks, sound, etc.).
- **Script Area** – Drag and connect blocks to **animate** the sprite.
- **Stage Area** – Displays the animation in action.

CHAPTER 3: CREATING A SIMPLE ANIMATION IN SCRATCH

3.1 Step 1: Choosing a Sprite

1. Click on the **Choose a Sprite** button.
2. Select a character from the **library** or upload your own image.

3.2 Step 2: Setting the Background

1. Click on the **Choose a Backdrop** button.
2. Select a **background** (e.g., forest, space, or underwater).

3.3 Step 3: Making the Sprite Move

1. Click on the **Sprite** to select it.
2. Drag the "**when green flag clicked**" block from the **Events category**.
3. Drag the "**move 10 steps**" block from the **Motion category**.

4. Connect the blocks together.

📌 Press the Green Flag  to test the movement!

3.4 Step 4: Adding a Loop for Continuous Movement

1. From Control, drag the "forever" block.

2. Place the "move 10 steps" block inside it.

📌 Now the sprite **keeps moving** until you stop it!

3.5 Step 5: Making the Sprite Bounce

1. Add the "if on edge, bounce" block from the Motion category.

2. Connect it inside the forever loop.

📌 The sprite **bounces back when it reaches the edge!**

CHAPTER 4: ADDING ANIMATION EFFECTS

4.1 Changing Sprite Costumes for Animation

1. Click on the **Sprite** and go to the **Costumes** tab.

2. Select or create **multiple costumes**.

3. Use the "next costume" block in the **Looks** category.

4. Place it inside the **forever loop** with a "wait 0.2 seconds" block for smooth animation.

📌 Now, the sprite **looks like it is walking or moving!**

4.2 Adding Sound Effects

1. Click on the **Sounds** tab.

2. Choose or upload a sound.

3. Use the "play sound until done" block from the **Sound category** inside the script.

📌 The animation **now has background music or sound effects!**

CHAPTER 5: INTERACTING WITH THE ANIMATION

5.1 Controlling the Sprite with Arrow Keys

1. Use the "when [up arrow] key pressed" block from **Events**.
2. Add "change y by 10" (up movement).
3. Repeat for left, right, and down keys by changing x and y values.

📌 Now, the sprite **moves with keyboard controls!**

5.2 Making the Sprite Speak

1. Use the "say [Hello!] for 2 seconds" block from the **Looks category**.
2. Place it after a movement or interaction event.

📌 The sprite **now interacts by talking!**

CHAPTER 6: CASE STUDY – CREATING A SIMPLE RUNNING ANIMATION

Scenario:

A student wants to create a simple running animation of a cat moving across the screen.

Solution:

- ✓ Used "move 10 steps" in a loop for continuous running.
- ✓ Used "next costume" to switch between running frames.
- ✓ Used "if on edge, bounce" to prevent the sprite from disappearing.

Outcome:

- The sprite **runs smoothly across the stage**.
- The animation **looks realistic with costume changes**.
- The script is **simple and easy to modify** for future projects.

CHAPTER 7: EXERCISE

7.1 Multiple Choice Questions

1. What is a **Sprite** in Scratch?
 - (a) A programming block
 - (b) A character or object in the animation
 - (c) The background of a project
 - (d) A code library
2. Which block is used to **start an animation**?
 - (a) "When green flag clicked"
 - (b) "Move 10 steps"
 - (c) "Say Hello"
 - (d) "If on edge, bounce"
3. How can you **repeat an animation continuously**?
 - (a) Use the "forever" block
 - (b) Use the "say" block

- (c) Click on the sprite
- (d) Use the "if-else" block

7.2 Practical Task

📌 **Create a Scratch Animation that Includes:**

1. A **sprite** moving across the stage.
2. **Looped movement** using the **forever** block.
3. **Costume changes** for a walking effect.
4. A **sound effect** when the sprite moves.

7.3 Short Answer Questions

- What are the **three key elements** of a Scratch project?
- How does the "**if on edge, bounce**" block help in animation?
- How can you add **user interaction** in a Scratch animation?

ISDM



ASSIGNMENT:

USE CHATGPT TO GENERATE A SHORT STORY & CREATE A SIMPLE ANIMATION IN SCRATCH BASED ON IT.

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STEP-BY-STEP GUIDE: USING CHATGPT TO GENERATE A SHORT STORY & CREATING AN ANIMATION IN SCRATCH

Step 1: Use ChatGPT to Generate a Short Story

1. Open ChatGPT (visit [ChatGPT](#) or any AI-powered chatbot).
2. Enter a prompt to generate a short story, such as:
 - o "Write a short story about a cat who gets lost in a magical forest."
 - o "Generate a fun adventure story for kids about a flying robot."
3. Review and edit the story to fit your animation project.
4. Copy the story and keep it handy for use in Scratch.

Example Short Story Generated by ChatGPT

📌 **Title:** *Leo the Curious Cat*

Leo, a curious cat, wandered into a magical forest. As he walked, he met a talking owl who told him about a hidden treasure. Excited, Leo followed the owl's instructions and found a glowing star that made him fly! With his new powers, Leo safely returned home, happy and wiser.

Step 2: Open Scratch and Set Up Your Animation

1. Go to [Scratch](#).
2. Click "Create" to start a new project.

3. Rename your project (e.g., *Leo's Adventure*).

Step 3: Add Sprites (Characters) and Backdrops

3.1: Adding Sprites

1. Click the **Choose a Sprite** button.
2. Select a **Cat Sprite** for Leo.
3. Click **Choose a Sprite** again and select an **Owl Sprite**.

3.2: Adding a Background

1. Click the **Choose a Backdrop** button.
 2. Select **Forest** as the background for the story setting.
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Step 4: Coding the Animation in Scratch

4.1: Make the Cat (Leo) Move & Introduce the Story

1. Click on the **Cat Sprite**.
2. Drag the "**When green flag clicked**" block from **Events**.
3. Add a "**Say Hello for 2 seconds**" block from **Looks**.
4. Change the text to:
 - "Hi! I'm Leo, and I am lost in this magical forest!"
5. Add a "**Move 10 steps**" block from **Motion**.
6. Test the script by clicking the **green flag**.

4.2: Make the Owl Give Instructions

1. Click on the **Owl Sprite**.

2. Drag the "**When green flag clicked**" block.
3. Add a "**Wait 2 seconds**" block from **Control** (so it speaks after Leo).
4. Add a "**Say**" block and type:
 - "Leo, find the glowing star to fly home!"

4.3: Make the Cat Move to Find the Star

1. Click on the **Cat Sprite** again.
2. Drag a "**Glide 2 seconds to x: y:**" block from **Motion**.
3. Adjust the x and y values to move the cat to the right.

Step 5: Adding an Object (The Glowing Star)

5.1: Create the Star Sprite

1. Click **Choose a Sprite** and select **Star**.
2. Resize the star using the **Size option** (set to ~50%).

5.2: Make the Star Disappear When Touched

1. Click on the **Star Sprite**.
2. Drag the "**When green flag clicked**" block.
3. Add a "**Forever**" block from **Control**.
4. Inside it, add "**If touching Cat then hide**" block from **Sensing & Looks**.

Now, when Leo touches the **star**, it disappears!

Step 6: Adding a Flying Effect for Leo

1. Click on the **Cat Sprite**.
2. Add a "**Broadcast message: Fly**" block from **Events** after Leo touches the star.
3. Drag a "**When I receive Fly**" block from **Events**.
4. Add "**Change y by 10**" (so Leo moves up).
5. Use "**Repeat 10**" (from **Control**) to make Leo fly upwards gradually.

Step 7: Ending the Animation

1. Click on the **Cat Sprite**.
2. Add a "**Say**" block after flying and type:
 - "Yay! I can fly home now!"
3. Use "**Wait 2 seconds**", then "**Stop all**" block to end the animation.

Step 8: Testing and Saving the Animation

1. Click the **Green Flag** to play your animation.
2. Make sure:
 - Leo speaks and moves.
 - The Owl gives instructions.
 - The star disappears when Leo touches it.
 - Leo flies at the end.
3. Click **File > Save Now**.

Final Checklist Before Submission

- ✓ Short story generated using ChatGPT.
- ✓ Sprites added (Leo the Cat, Owl, Star, Background).
- ✓ Basic animations (Leo moving, Owl talking, Star disappearing).
- ✓ Flying effect applied when Leo gets the star.
- ✓ Project saved in Scratch.

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