**Lets Unbound**
unlock your child's potential

# SEMESTER
## PROGRAM 2022

## For Grades 9+

Game Development | App Development | Animation
Computational Thinking | Coding

**STEM.ORG**
**ACCREDITED™**
EDUCATIONAL EXPERIENCE

# Why Lets Unbound's Semester Program?

Balanced learning with 2-3 classes per week for 12, 24 or 48 weeks.
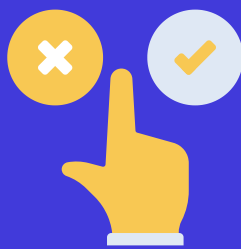
Choose what You love from Game and App Development, Websites Web Games and Web Apps, Python, Java, AI/ML and so much more.

Always be in sight of our expert mentors with our 1-1 personalised live sessions.

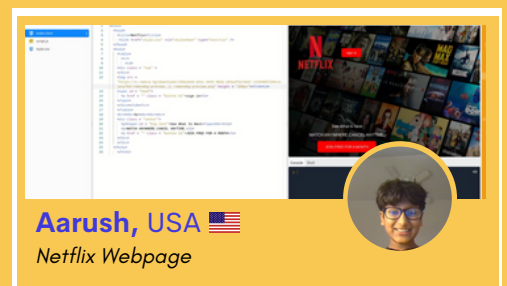Dive into the fascinating world of computational thinking, not just coding.

Have access to workshops, hackathons and other events conducted regularly.

CERTIFICATE OF EXCELLENCE

unbound
unlock your child's potential

This is to certify that

for demonstrating continuous excellence in the

**PROF. NISHANT CHAWLA**
Director, Unbound

letsunbound.com

HACKATHON
5th FEB - 26th FEB

#TEAM 30
Sara Rishi

PROJECT
RENEWABLE ENERGY

unbound
unlock your child's potential

**Aarush,** USA 🇺🇸
*Netflix Webpage*

NETFLIX

**BLOCK CHAIN CERTIFICATES**

**HACKATHONS**

**WEEKEND WORKSHOPS AND POTENTIAL UNLOCKED**

# Unbounded Journey of Coding

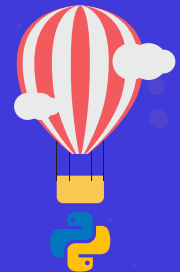**Age appropriated Pathways to serve the individual needs of the Students**

## Grades 9+

- Web Development – HTML , CSS JS
- Core JAVA
- Core Python

## Grades 7-8

- Web Development – HTML , CSS JS
- Core JAVA
- Core Python
- Game and App Development using Javascript

## Grades 4-6

- Game and App Development using Javascript
- Web Development – HTML, CSS JS
- Android App Development
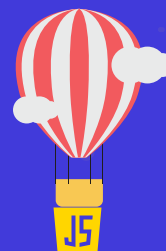- Game Development using Python
- ROBLOX

## Grades 2-3

- Game and App Development using Blocks
- Android App Development
- ROBLOX

## Grades K-1

- Game and App Development using Blocks

# Grades 9+

- Balanced learning with 2-3 classes per week for 12, 24 or 48 weeks.
- Choose what You love from Game and App Development, and so much more.
- Always be in sight of our expert mentors with our 1-1 personalized live sessions.
- Dive into the fascinating world of computational thinking, not just coding.
- Grade appropriate curriculum structure delivered by expert mentors.
- Develop logical and computational thinking skills.
- Regular assessments & Student Reports.

Grades 9+

Grades 7-8

Grades 4-6

Grades 2-3

Grades K-1

# Web Development

**Web Development using HTML, CSS and Javascript**

**Intermediate | Grade 9+ | Age 14+**

**Course Outline:** The curriculum is designed specifically for teens and it starts from no-code to a super junior web developer. Start with the front-end by learning HTML & CSS. And then master all the basic concepts of HTML, CSS & JS.

**Prerequisites:** Basic Reading and Numeracy Skills**.**

| Session | Key Concept | Projects |
|---|---|---|
| **Level 1 (1 to 24 Sessions)** | | |
| 1 to 8 | **Fundamentals of HTML:-** HTML Structure, Tags & Attributes, Texts & Styles, Lists, Images & Videos | **Human Evolution** <br> Other Projects: Indian states and Languages, The Universe, & Gallery Portfolio |
| 9 to 16 | **Introduction to Tables:-** Links, Indentation, Text Formating, Tags & Tables | **Fashion Blog & Recipe Book** <br> Other Projects:: Spheres of the Earth, etc. |
| 17 to 24 | **Introduction to Forms:-** Tables, Marquee tag & HTML Forms | **Facebook Login Page** <br> Other Projects:  Registration Form |
| **Level 2 (25 to 48 Sessions)** | | |
| 25 to 32 | **Fundamentals of CSS:-** CSS Basics, Specificity & Selectors, Comments & Background, Font & align attributes | **Restaurant Blog** <br> Other Projects:  Types of Vitamins, Sources of Electricity |

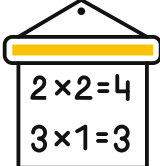| Session | Key Concept | Projects |
|---------|-------------|----------|
| 33 to 40 | **CSS Features:-** List & Link, Command line Instructions, Background, Border, Margin, Padding, Box Model & Colors in CSS | **Types of Cell (Plant & Animal Cell)** Other Projects: Sense organs, Glands in our body |
| 41 to 48 | **Properties in CSS:-** Typography, Float, Dropdown, Opacity, Navigation Bar, Text & Overflow in CSS | **Chemistry in Everyday Life** Other Projects: Paint Store, E-commerce Shopping Website & Travel Blog |
| **Level 3 (49 to 80 Sessions)** | | |
| 49 to 56 | **Fundamentals of JavaScript:-** JavaScript Basics, Output, Statement, Features & Syntax in JavaScript, JavaScript Comments, Variables & Identifiers, Const & Let, Operators, Datatypes & Function | **Create a Collapsible** Other Projects |
| 57 to 64 | **Introduction to Event, String & Number:-** JavaScript Object, Events & Strings, String Methods, Number and its methods | **Countdown Timer** Other Projects |
| 65 to 72 | **Introduction to Arrays:-** JavaScript Number Methods, Arrays – Arrays Methods – Array Sort | **To-do List** Other Projects: Instagram login Page, Music Band Webpage |
| 73 to 80 | **Hands on Projects** | **Rock- Paper- Scissors** Other Projects: , 2D Game, Ratings & Sliders, Scroll |

Lets Unbound
unlock your child's potential

# Core Python

**(Real life application of Python)**

**Course Outline:** Python is widely used across various companies like Netflix, Google, Instagram, etc. Learn Python from Scratch to solve real-life problems and build dynamic Mobile applications.
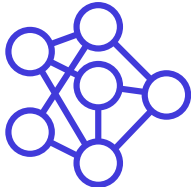
**Prerequisites:** Basic Reading and Numeracy Skills**.**

Level 1 — Level 2 — Level 3
- A
- B
- C
- D

| Session | Key Concept | Projects |
|---------|-------------|----------|
| **Level 1 (1 to 24 Sessions)** | | |
| **1 to 8** | **Introduction to Python:** Why Python? An Introduction To Python-Tokens, Types of Operators, Data Types in Python, Simple If, If-else Statement | **Report Card Maker** |
| **9 to 16** | **Python Control/Looping statement:** Nested If statement, Membership Operator, While Loop, Nested While Loop, Nested While | **Voting Eligibility check** |
| **17 to 24** | **Real-time problem solving:** For Loop, Nested for Loop, Break statement, Continue statement, Pass statement, Real-time problem solving with python in Hackerrank | **Multiplication Table** |
| **Level 2 (25 to 48 Sessions)** | | |
| **25 to 32** | **Introduction to String:** String Operators Slicing Operators Traversing in Strings Built In Functions In Strings | **Applications of Strings** |

| Session | Key Concept | Projects |
|---|---|---|
| 33 to 40 | **Concepts of List:** Introduction to List & Tuples Operations with List Introduction to Matrix Dictionary Set | **[matrix]🤖** |
| 41 to 48 | **OOP Java:** Classes/Objects Class Attributes Class Methods Modifiers Encapsulation Polymorphism Abstraction | Get a string and print it, reverse a string program, string concatenation, Getting an array & printing elements, Sorting Array, Searching elements in array, reverse an array, Finding minimum & maxiimum element in array, Getting an matrix & printing elements, Sorting matrix, Searching elements in matrix, reverse row elements in matrix, Findind minimum & maxiimum element in Matrix, Matrix Transpose, Declare a basic class with object, Add functions and attributes to the class, Preform runtime polymorphism and compile time polymorphisim, Perform abstraction of functions |

### Level 3 A - App Development using Kivy (49 to 80 Sessions)

| Session | Key Concept | Projects |
|---|---|---|
| 49 to 56 | **Kivy Widgets:** Checkbox, drop down, popup, buttons, spinner & animation, progress bar | **Checkbox, drop down, popup, buttons, spinner & animation, progress bar** |
| 57 to 68 | **Kivy basic Projects:** Login using kivy, scatter & page layout, conditional statements, calculator & stopwatch | **Login using kivy, scatter & page layout, conditional statements, calculator & stopwatch** |
| 69 to 80 | **Kivy Advanced Games:** Flappy game, Ping pong, create shapes, sorting using kivy | **Flappy game, Ping pong, create shapes, sorting using kivy** |

### Level 3 B - Data Structures using Python (49 to 80 Sessions)

| Session | Key Concept | Projects |
|---|---|---|
| 49 to 56 | **Python Array LinkedList(CLL,SLL,DLL) Operations with the Sets & Maps Data structures** | **Python - DS Introduction & Environment setUp Revision on Arrays, Lists, Tuples A detailed Study on Dictionary A detailed Study on 2D arrays & Matrix Sets & Maps Linked List Operations in LinkedList Stacks Queue Advanced Linked List Circular linked list** |

**Lets Unbound**
unlock your child's potential

| Session | Key Concept | Projects |
|---|---|---|
| **57 to 68** | Detailed concepts like Stack,Queue, Heap Tree with BST & graph is covered along with several operations. In addition to this an overview on Algorithm Design is studied along with several other algorithms like Divide & Conquer Recursion Tower Of hanoi BackTracking & N- Queen Algorithm | **Binary tree Search Tree Heaps Graphs Graph Operations Algorithm Design Divide & Conquer Recursion Tower Of hanoi BackTracking N-Queen Algorithm** |
| **69 to 80** | All the sorting & searching algorithms are analyised in detail | **Seaching Algorithm - Linear Search Seaching Algorithm - Binary Search Sorting Algorithm - Bubble Sort Sorting Algorithm - Merge Sort Sorting Algorithm - Insertion Sort Sorting Algorithm - Shell Sort Sorting Algorithm - Selection Sort Graph algorithm - DFS Graph algorithm - BFS Algorithm analysis & complexities** |
| **Level 3 C - Game Development using Pygame (49 to 80 Sessions)** | |
| **49 to 56** | **Pygame basics:** Basic Sprite in Pygame, Geometric Drawings, Adding Image, Key Movement, Text and Font , Sprite Movement, Input Models | **Basic Sprite in Pygame, Geometric Drawings, Adding Image, Key Movement, Text and Font , Sprite Movement, Input Models** |
| **57 to 68** | **Pygame basics:** Ping pong, starfield, steering game, event list, drawing shapes | **Ping pong, starfield, steering game, event list, drawing shapes** |
| **69 to 80** | **Pygame basics:** Collision, Motion Equations, Vector basics & Sum, Pixel Array & Scrolling in pygame | **Collision, Motion Equations, Vector basics & Sum, Pixel Array & Scrolling in pygame** |

**Lets Unbound**
unlock your child's potential

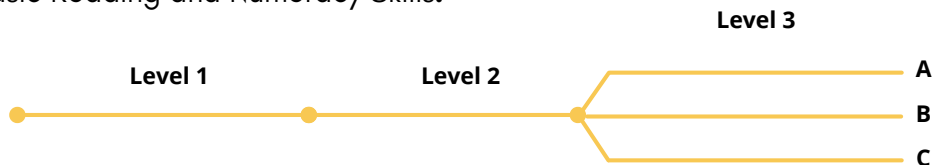| Session | Key Concept | Projects |
|---------|-------------|----------|
| **Level 3 D -AI and ML Development (49 to 80 Sessions)** | | |
| **57 to 68** | Machine Learning and Data processing classification and regression | |
| **69 to 80** | Random Forest, KNN Algorithm and Super Vector Machine | |
| **49 to 56** | Naive Bayes and Decision Tree | |

# Core Java!

**(Animation and Game Development using Blocks / Javascript)**

**Advanced | Grade 9+ | Age 14+**

**Course Outline:** The camp curriculum helps kids transform their imagination into games
Kids could choose to use Blocks or Javascript as a part of the camp.
The projects are aligned to academics. By the end of the camp, students will be able to create multiplayer games, animations as well as short stories which can be shared with family and friends.

**Prerequisites:** Basic Reading and Numeracy Skills.

Level 1 ———— Level 2 ———— Level 3 ———— A
                                          B
                                          C

| Session | Key Concept | Projects |
|---------|-------------|----------|
| **Level 1 (1 to 24 Sessions)** | | |
| 1 to 8 | **Introduction to Java & Input/Output:** Statement Number System Conversion of Number System Quiz & Number System Keywords & Identifiers Data Types Data Types Arithmetic Operator | **Report Card Maker** |
| 9 to 16 | **Operators & Control statement:** Relational Operator Instance Of, Bitwise, Shift right,shift Left, Conditional Operator(?:), Main function Conditional Statement Simple If statement If else statement Else If Statement, Nested | **Age Checker** |
| 17 to 24 | **Looping Statement:** While loop, Nested Loops using while loop, Do while, Nested Do while, For Loop, Nested For, Jump Statement | **Star Pattern** |
| **Level 2 (25 to 48 Sessions)** | | |
| 25 to 32 | **Basic Concepts of Arrays/Strings** Introduction to 1D Array & Types, Functions with 1D Array, 2D Array (Matrix Overview), Introduction to String, Inbuilt function in String, User built String Functions | **Real time Projects** |

| Session | Key Concept | Projects |
|---------|-------------|----------|
| 33 to 40 | **Introduction to Functions:** Define A Functions (Methods), Call A Java Methods, Java Method Parameters, Java Method Overloading, Java Scope, Java Recursion | **Voting Eligibility Checker** |
| 41 to 48 | **Java OOP:** Java Classes/Objects, Java Class Attributes, Java Class Methods, Java Modifiers, Java Encapsulation, Java Polymorphism, Java Abstraction | **Online Quiz** |

## Level 3 A - Data Structures using Java (49 to 80 Sessions)

| Session | Key Concept | Projects |
|---------|-------------|----------|
| 49 to 56 | Java Array List LinkedList Operations with the Sets & Maps Interface | JAVA - DS Introduction Introduction to ArrayList ArrayList Operations A detailed Study on ArrayList Sets & Maps Linked List Operations in LinkedList Advanced Linked List |
| 57 to 68 | Detailed concepts like Stack,Queue, Heap Tree with BST & graph is covered along with several operations. In addition to this an overview on Algorithm Design is studied along with several other algorithms like Divide & Conquer Recursion Tower Of hanoi BackTracking & N- Queen Algorithm | Stack Operations On Stack Queue Operations On Queue Introduction toTree BST BST Graphs Graph Operations Graph traversal - bfs Graph traversal - dfs Application of graphs |
| 69 to 80 | All the sorting & searching algorithms are analyised in detail | Divide & Conquer Recursion Tower Of hanoi Seaching Algorithm - Linear Search Seaching Algorithm - Binary Search Sorting Algorithm - Bubble Sort Sorting Algorithm - Insertion Sort Sorting Algorithm - Selection Sort Sorting Algorithm - Merge Sort merge sort application Sorting Algorithm - Quick Sort Quick sort application |

## Level 3 B - Android App Development (49 to 80 Sessions)

| Session | Key Concept | Projects |
|---------|-------------|----------|
| 49 to 56 | Basic XML along with DVM & R. Major components in Android App is built | Introduction To Android Development Using Java My first Project wIth XML DVM & R file Android Screen Orientation Android Widgets Toast class in Java & Quiz Android Toggle class Android Checkbox class Android RadioButton Android AlertDialog Android Spinner |

| Session | Key Concept | Projects |
|---------|-------------|----------|
| **57 to 68** | Major views and bars available in Android App along with other components is built | AutoCompleteTextView Android ListView RatingBar & Webview DatePicker & SeekBar TimePicker & AnalogClock Alarm Project Android progress bar ScrollView Working on Images TabLayout TabLayout with FrameWork SearchView |
| **69 to 80** | Fully Complete Application along with Integration with google map API. In the end the student will be able to make a detailed application with future integration on database is done | Android Google Map Android Google Map Displaying Current Location Android Google Map Search Location using Geocoder Android Application that writes data to the SD Card Android example of integrating Google reCAPTCHA Android QR Code Scanner Android Barcode Scanner Volley Library - Registration, Log-in, and Log-out Volley Library - Registration, Log-in, and Log-out |

### Level 3 C - Backend in Web Development (49 to 80 Sessions)

| Session | Key Concept | Projects |
|---------|-------------|----------|
| **49 to 56** | The 3 Tier Application is created and a detailed structure on MVC pattern(Model view controller) is provided. A deep drive into Backend structure is made & students will get good understanding on using MySQL | Web Fundamentals - HTML/CSS Web Fundamentals - JS Project - Form Validation Archeitectural Pattern (MVC) XML Overview Introduction to JDBC Query Language/Table MySQL - Query Language Project - Login Page Project - Login Page |
| **57 to 68** | HTTP Request & respo se along with JSP & Servlets is completed with cookies and session tracking concepts | Creating & excution of servlets HTTP Request/Response Session Tracking Cookies Project - Session Tracking Project - Session Tracking Introduction to JSP JSP scripting Elements Implicit Objects in JSP JSP Directive Elements JSTL |
| **69 to 80** | All the Structures from frontend and backend is combined together resulting in a high end project | Project - CRUD on DB Project - CRUD on DB Customer Management system (Part 1) Customer Management system (Part 2) Employee Management system (Part 1) Employee Management system (Part 2) Pizza Delivery Management System (Part 1) Pizza Delivery Management System (Part 2) Student School Portal (Part 1) Student School Portal (Part 2) Student School Portal (Part 3) |

Lets Unbound
unlock your child's potential

# FAQS

**How will my child benefit from your programs?**
LETS UNBOUND courses teach critical 21st century skills, including computer programming, critical thinking, and problem solving. Students learn how to logically sequence events, create playable games & apps, tell good stories, and model real situations. They also learn computational thinking by developing algorithmic and design thinking abilities. After learning the fundamentals, kids can transition to higher end of languages like Python, JavaScript within the LETS UNBOUND learning system.

**My child is too small to take up computer based programs & skill development, I am unable to decide?**
LETS UNBOUND is a 1:1 Online platform and our courses are designed for kids of the age group 6-14. The classes are taken by High quality certified mentors & experts who are trained specially to ensure that the kids understand the topics properly. Your Child specifically builds their algorithmic thinking via the course helping them for the future especially 21st century skills.

**Can my child share an account & learn together?**
Multiple kids cannot share the same account, because they will overwrite each other's work. We offer referral bonuses when you add additional children to our programs.

**What all programs are run by LETS UNBOUND?**
LETS UNBOUND is a learning ecosystem to provide technology enabled platforms for every child, making them confident & prepare for all the right set of skills needed to succeed in the 21st century. We offer programs from Computational Thinking, Logical Reasoning, Problem Solving based also few of our programs in future will cater to mathematics, entrepreneurship, hobbies etc.

**What prior knowledge of coding is required by my child & where all we avail these?**
Our Programs do not require prior coding experience to learn. All Programs are designed for school and extra-curricular.

**What technical requirements are needed to run Programs ?**
Desktop or Laptop, Chrome web browser, Broadband internet connection (min 10 Mbps).

**Why should my child learn coding ?**
Your child should learn to code because:
- Coders are in high demand considering future high paying jobs in the 21st century.
- Coding provides a competitive advantage, improves problem solving and persistence
- Coding knowledge allows students better understand the world

**Lets Unbound**
unlock your child's potential

STEM.ORG ACCREDITED™ EDUCATIONAL EXPERIENCE

HARVARD STUDENT AGENCIES

**ASU** Arizona State University

# TEAM WITH 25+ YRS OF EDTECH EXPERIENCE & ALUMNI FROM

TATA

**SP**JIMR
Bharatiya Vidya Bhavan

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

SYMBIOSIS INTERNATIONAL UNIVERSITY PUNE

**Deloitte.**

" In the new economy, computer science isn't an optional skill, it's a basic skill, I strongly believe every child has to have the opportunity to learn this critical skill. We are inundated with technology and I don't want our young people to just be consumers, I want them to be producers of this technology and to understand it, to feel like they're controlling it, as opposed to it controlling them. "

**Barack Obama**