

Develop your students skill set and prepare them for the future!

The Easiest Way to Teach Coding in Schools
No previous experience in coding required



About Us

- + Codementum was established to give children aged 8 to 17 years of age an online platform to learn coding, develop mobile games and applications with the coding knowledge they have learnt.
- + Codementum provides all the curriculum, intuitive tools, and resources you need to run a successful CS program.
- + Codementum aims to provide advanced level computer skills by increasing the algorithmic and computational thinking skills.

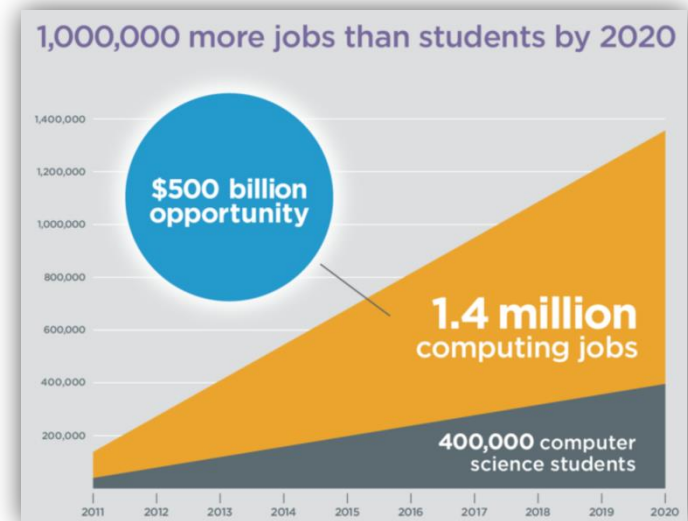
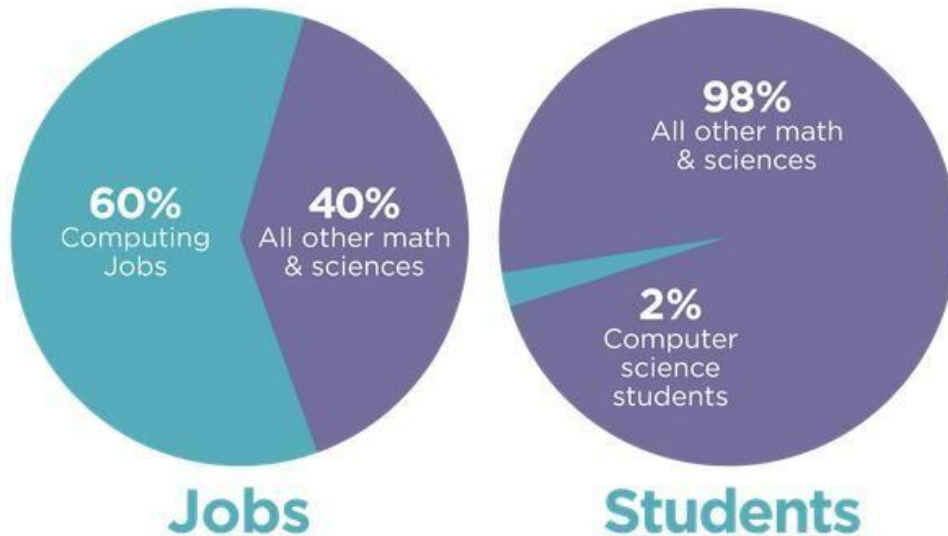


Participant in

EDUCATE
EDUCATION • RESEARCH • EDTECH

Why Coding?

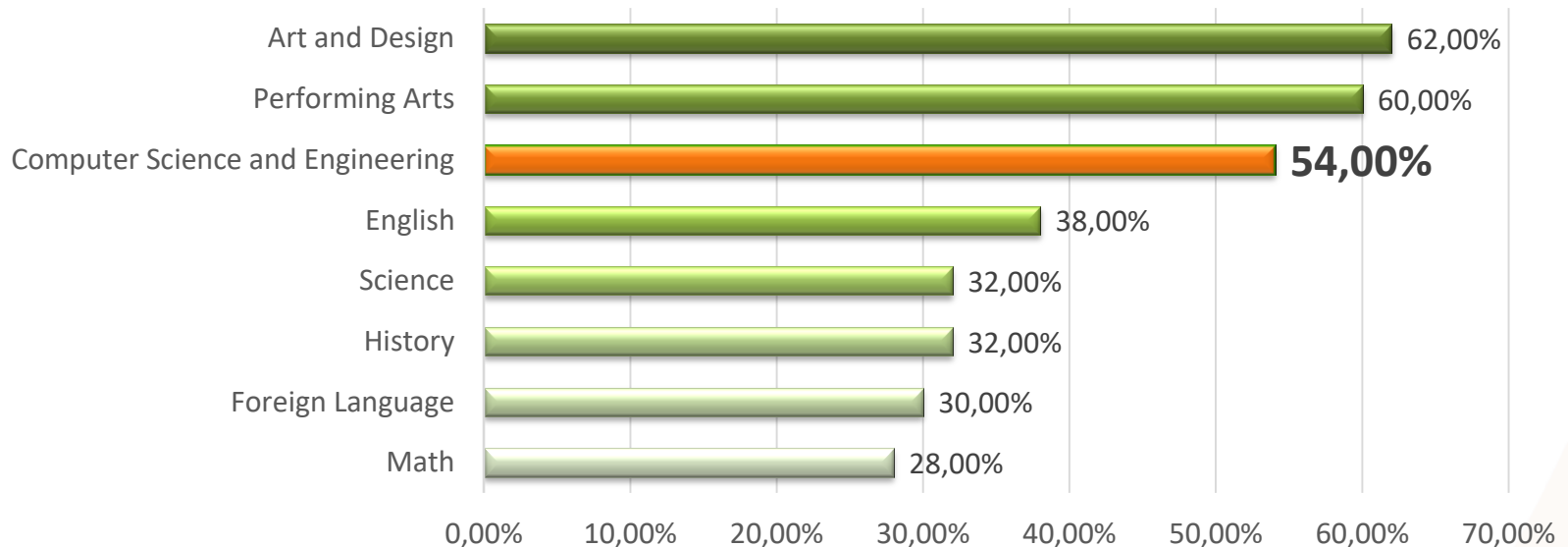
The job/student gap in Computer Science



Why Coding?

Students enjoy **Computer Science** and the Arts **the most!**

What subjects do students like 'a lot'?



21st Century Skills

- + Problem solving
- + Analytical thinking
- + Critical thinking
- + Creative thinking
- + Collaboration
- + Media and information literacy
- + Technology skills



PISA 2021

Computational Thinking in PISA 2021 Mathematics

Below is an example of the type of **computational thinking question** that could be included on the **2021 PISA** assessment.

PISA 2021

Tiling
Question 2/5

Refer to "tiling" on the right. Use drag-and-drop to complete the problem.

Ameer wants to make a set of instructions that he can give to people who want to make the same tiling pattern.

Drag and drop the elements into the spaces to complete the instructions that will produce the pattern on the right.

IF THEN ELSE TILE A TILE B

TILING INSTRUCTIONS

For row = 1 to 4

"Determine the first tile in the row"

IF the row is an odd numbered row

THEN the first tile is

ELSE the first tile is

"Complete the row by tiling from left to right"

IF the previous tile is

use

use

Next row

TILING

Tile A Tile B

How To?



No previous experience in coding required



Coding Curriculum for every level



Real Programming Language (Python & JavaScript)



Game Based Learning



Synchronized Text-based and Block-based coding



STEM Courses & Computer Science

Our Projects



Codementum Studio

Learn coding in a fun way by playing games!



Codementum App Maker

Develop platform-independent mobile applications!



Codementum Game Maker

Develop platform-independent mobile games!



Codementum AI-ML Maker

Learn and Develop AI & ML applications!



Codementum STEM

Write code for electronic devices!



Codementum Computer Science

Exercise for coding exams!



Codementum Studio

7 – 13 Ages **EASY**



Codementum Studio

13+ Ages **ADVANCED**



Codementum Studio



7 – 13 Ages **EASY**

CODING ADVENTURE 1		CODING ADVENTURE 2		CODING ADVENTURE 3		CODING ADVENTURE 4	
Section	Topic	Section	Topic	Section	Topic	Section	Topic
1	The Basics	8	Conditional Expressions - if elif	15	AND OR NOT	22	Debugging
2	Repeat Loops	9	Conditional Expressions - if else	16	Return Value	23	Functions with Parameters
3	Variables	10	Boolean Logic	17	Events	24	Character String Methods
4	Arrays	11	While Loops	18	Lists	25	Modules
5	For Loops	12	Functions	19	Sets	26	Time and Datetime Modules
6	Helper Methods	13	Parameters	20	Dictionaries	27	Defining Classes
7	Conditional Expressions - if	14	Comparison Operators	21	Mathematical operations	28	Database

13+ Ages **ADVANCED**

CODING ADVENTURE 1		CODING ADVENTURE 2		CODING ADVENTURE 3		CODING ADVENTURE 4	
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1	The Basics	8	Conditional Expressions - if elif	15	AND OR NOT	22	Debugging
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3	Variables	10	Boolean Logic	17	Events	24	Character String Methods
4	Arrays	11	While Loops	18	Lists	25	Modules
5	For Loops	12	Functions	19	Sets	26	Time and Datetime Modules
6	Helper Methods	13	Parameters	20	Dictionaries	27	Defining Classes
7	Conditional Expressions - if	14	Comparison Operators	21	Mathematical operations	28	Database

Curriculum

LEGEND	
CS-U	Computer Science Unplugged
CS-F	CS Fundamentals
CS-FA	CS Fundamentals Advanced
CS-T	Computer Science Theory
CS-A	Computer Science Algorithm
ST-PA	Studio Python Advanced
ST-JA	Studio JavaScript Advanced
AP-I	App Maker Intermediate
GM-I	Game Maker Intermediate
AI-B	AI-ML Maker Beginner
AI-B	AI-ML Maker Advanced
AR-B	AR-VR Maker Beginner
AR-A	AR-VR Maker Advanced
STEM-PA	STEM Python Advanced

CODEMENTUM CURRICULUM OFFER

Academic Program			PYP					MYP			IGCSE		IBDP	
CSTA Grades		K-2			G3-5			6-8			9-10		11-12	
Grade Level		KG	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
Mod ule 1	Week1	CS-U01	CS-F01	CS-FA01	ST-B01	ST-PB01	ST-PB10	CS-T01	CS-T06	CS-T11	CS-T20	CS-T29	CS-TA01	CS-TA10
	Week2	CS-U02	CS-F02	CS-FA02	ST-B02	ST-PB02	ST-PB11	CS-T02	CS-T07	CS-T12	CS-T21	CS-T30	CS-TA02	CS-TA11
	Week3	CS-U03	CS-F03	CS-FA03	ST-B03	ST-PB03	ST-PB12	CS-T03	CS-T08	CS-T13	CS-T22	CS-T31	CS-TA03	CS-TA12
	Week4	CS-U04	CS-F04	CS-FA04	ST-B04	ST-PB04	ST-PB13	CS-T04	CS-T09	CS-T14	CS-T23	CS-T32	CS-TA04	CS-TA13
	Week5	CS-U05	CS-F05	CS-FA05	ST-B05	ST-PB05	ST-PB14	CS-T05	CS-T10	CS-T15	CS-T24	CS-T33	CS-TA05	CS-TA14
	Week6	CS-U06	CS-F06	CS-FA06	ST-B06	ST-PB06	ST-PB15	CS-A01	CS-A05	CS-T16	CS-T25	CS-T34	CS-TA06	CS-TA15
	Week7	CS-U07	CS-F07	CS-FA07	ST-B07	ST-PB07	ST-PB16	CS-A02	CS-A06	CS-T17	CS-T26	CS-T35	CS-TA07	CS-TA16
	Week8	CS-U08	CS-F08	CS-FA08	ST-B08	ST-PB08	ST-PB17	CS-A03	CS-A07	CS-T18	CS-T27	CS-T36	CS-TA08	CS-TA17
	Week9	CS-U09	CS-F09	CS-FA09	ST-B09	ST-PB09	ST-PB18	CS-A04	CS-A08	CS-T19	CS-T28	CS-T37	CS-TA09	CS-TA18
Mod ule 2	Week10	CS-U10	CS-F10	CS-FA10	ST-B10	ST-JB01	ST-B10	ST-PA01	ST-PA10	ST-PA19	ST-PA28	CS-T38	AP-A01	GM-A01
	Week11	CS-U11	CS-F11	CS-FA11	ST-B11	ST-JB02	ST-JB01	ST-PA02	ST-PA11	ST-PA20	ST-PA29	CS-T39	AP-A02	GM-A02
	Week12	CS-U12	CS-F12	CS-FA12	ST-B12	ST-JB03	ST-JB02	ST-PA03	ST-PA12	ST-PA21	ST-PA30	ST-PA38	AP-A03	GM-A03
	Week13	CS-U13	CS-F13	CS-FA13	ST-B13	ST-JB04	ST-JB03	ST-PA04	ST-PA13	ST-PA22	ST-PA31	ST-PA39	AP-A04	GM-A04
	Week14	CS-U14	CS-F14	CS-FA14	ST-B14	ST-JB05	ST-JB04	ST-PA05	ST-PA14	ST-PA23	ST-PA32	ST-PA40	AP-A05	GM-A05
	Week15	CS-U15	CS-F15	CS-FA15	ST-B15	ST-JB06	ST-JB05	ST-PA06	ST-PA15	ST-PA24	ST-PA33	ST-PA41	AP-A06	GM-A06
	Week16	CS-U16	CS-F16	CS-FA16	ST-B16	ST-JB07	ST-JB06	ST-PA07	ST-PA16	ST-PA25	ST-PA34	ST-PA42	AP-A07	GM-A07
	Week17	CS-U17	CS-F17	CS-FA17	ST-B17	ST-JB08	ST-JB07	ST-PA08	ST-PA17	ST-PA26	ST-PA35	ST-PA43	AP-A08	GM-A08
	Week18	CS-U18	CS-F18	CS-FA18	AP-B01	ST-JB09	ST-JB08	ST-PA09	ST-PA18	ST-PA27	ST-PA36	ST-PA44	AP-A09	GM-A09
Mod ule 3	Week19	CS-U19	CS-F19	CS-FA19	AP-B02	AP-B01	GM-B01	ST-JA01	ST-JA01	ST-JA19	AP-I01	GM-I01	AI-B01	AR-B01
	Week20	CS-U20	CS-F20	CS-FA20	AP-B03	AP-B02	GM-B02	ST-JA02	ST-JA02	ST-JA20	AP-I02	GM-I02	AI-B02	AR-B02
	Week21	CS-U21	CS-F21	CS-FA21	AP-B04	AP-B03	GM-B03	ST-JA03	ST-JA03	ST-JA21	AP-I03	GM-I03	AI-B03	AR-B03
	Week22	CS-U22	CS-F22	CS-FA22	AP-B05	AP-B04	GM-B04	ST-JA04	ST-JA04	ST-JA22	AP-I04	GM-I04	AI-B04	AR-B04
	Week23	CS-U23	CS-F23	CS-FA23	AP-B06	AP-B05	GM-B05	ST-JA05	ST-JA05	ST-JA23	AP-I05	GM-I05	AI-B05	AR-B05
	Week24	CS-U24	CS-F24	CS-FA24	AP-B07	AP-B06	GM-B06	ST-JA06	ST-JA06	ST-JA24	AP-I06	GM-I06	AI-B06	AR-B06
	Week25	CS-U25	CS-F25	CS-FA25	AP-B08	AP-B07	GM-B07	ST-JA07	ST-JA07	ST-JA25	AP-I07	GM-I07	AI-B07	AR-B07
	Week26	CS-U26	CS-F26	CS-FA26	AP-B09	AP-B08	GM-B08	ST-JA08	ST-JA08	ST-JA26	AP-I08	GM-I08	AI-B08	AR-B08
	Week27	CS-U27	CS-F27	CS-FA27	GM-B01	AP-B09	GM-B09	ST-JA09	ST-JA09	ST-JA27	AP-I09	GM-I09	AI-B09	AR-B09
Mod ule 4	Week28	CS-U28	CS-F28	CS-FA28	GM-B02	STEM-B01	STEM-B10	AP-I01	GM-I01	STEM-P01	STEM-P10	STEM-P19	AI-A01	AR-A01
	Week29	CS-U29	CS-F29	CS-FA29	GM-B03	STEM-B02	STEM-B11	AP-I02	GM-I02	STEM-P02	STEM-P11	STEM-P20	AI-A02	AR-A02
	Week30	CS-U30	CS-F30	CS-FA30	GM-B04	STEM-B03	STEM-B12	AP-I03	GM-I03	STEM-P03	STEM-P12	STEM-P21	AI-A03	AR-A03
	Week31	CS-U31	CS-F31	CS-FA31	GM-B05	STEM-B04	STEM-B13	AP-I04	GM-I04	STEM-P04	STEM-P13	STEM-P22	AI-A04	AR-A04
	Week32	CS-U32	CS-F32	CS-FA32	GM-B06	STEM-B05	STEM-B14	AP-I05	GM-I05	STEM-P05	STEM-P14	STEM-P23	AI-A05	AR-A05
	Week33	CS-U33	CS-F33	CS-FA33	GM-B07	STEM-B06	STEM-B15	AP-I06	GM-I06	STEM-P06	STEM-P15	STEM-P24	AI-A06	AR-A06
	Week34	CS-U34	CS-F34	CS-FA34	GM-B08	STEM-B07	STEM-B16	AP-I07	GM-I07	STEM-P07	STEM-P16	STEM-P25	AI-A07	AR-A07
	Week35	CS-U35	CS-F35	CS-FA35	GM-B09	STEM-B08	STEM-B17	AP-I08	GM-I08	STEM-P08	STEM-P17	STEM-P26	AI-A08	AR-A08
	Week36	CS-U36	CS-F36	CS-FA36	GM-B10	STEM-B09	STEM-B18	AP-I09	GM-I09	STEM-P09	STEM-P18	STEM-P27	AI-A09	AR-A09



Curriculum Detail

PRIMARY Computer Science

Grade 3				Grade 4				Grade 5			
No	Short Code	Lesson Name	Project Name	No	Short Code	Lesson Name	Project Name	No	Short Code	Lesson Name	Project Name
1	ST-B01	Studio Block	The Basics	1	ST-PB01	Studio Block	The Basics	1	ST-PB10	Studio Block	Conditional Expressions - if else
2	ST-B02	Studio Block	Repeat Loops	2	ST-PB02	Studio Block	Repeat Loops	2	ST-PB11	Studio Block	Conditional Expressions - if else
3	ST-B03	Studio Block	Variables	3	ST-PB03	Studio Block	Variables	3	ST-PB12	Studio Block	Boolean Logic
4	ST-B04	Studio Block	Arrays	4	ST-PB04	Studio Block	Arrays	4	ST-PB13	Studio Block	While Loops
5	ST-B05	Studio Block	For Loops	5	ST-PB05	Studio Block	For Loops	5	ST-PB14	Studio Block	Functions
6	ST-B06	Studio Block	For Loops	6	ST-PB06	Studio Block	For Loops	6	ST-PB15	Studio Block	Parameters
7	ST-B07	Studio Block	Helper Methods	7	ST-PB07	Studio Block	Helper Methods	7	ST-PB16	Studio Block	Comparison Operators
8	ST-B08	Studio Block	Conditional Expressions - if	8	ST-PB08	Studio Block	Conditional Expressions - if	8	ST-PB17	Studio Block	Comparison Operators 2
9	ST-B09	Studio Block	Conditional Expressions - if Continue	9	ST-PB09	Studio Block	Conditional Expressions - if Continue	9	ST-PB18	Studio Block	AND OR NOT
10	ST-B10	Studio Block	Conditional Expressions - if else	10	ST-B10	Studio Block	The Basics	10	ST-B10	Studio Block	AND OR NOT
11	ST-B11	Studio Block	Conditional Expressions - if else	11	ST-B102	Studio Block	Repeat Loops	11	ST-B101	Studio Block	Return Value
12	ST-B12	Studio Block	Boolean Logic	12	ST-B103	Studio Block	Variables	12	ST-B102	Studio Block	Events
13	ST-B13	Studio Block	While Loops	13	ST-B104	Studio Block	Arrays	13	ST-B103	Studio Block	Lists
14	ST-B14	Studio Block	Functions	14	ST-B105	Studio Block	For Loops	14	ST-B104	Studio Block	Sets
15	ST-B15	Studio Block	Parameters	15	ST-B106	Studio Block	For Loops	15	ST-B105	Studio Block	Dictionaries
16	ST-B16	Studio Block	Comparison Operators	16	ST-B107	Studio Block	Helper Methods	16	ST-B106	Studio Block	Mathematical operations
17	ST-B17	Studio Block	Comparison Operators	17	ST-B108	Studio Block	Conditional Expressions - if	17	ST-B107	Studio Block	Mathematical operations
18	AP-B01	App Maker	Photogram	18	ST-B109	Studio Block	Conditional Expressions - if Continue	18	ST-B108	Studio Block	Mathematical operations
19	AP-B02	App Maker	Todo App	19	AP-B01	App Maker	Photogram	19	GM-B01	Game Maker	Photogram
20	AP-B03	App Maker	Project3	20	AP-B02	App Maker	Todo App	20	GM-B02	Game Maker	Todo App
21	AP-B04	App Maker	Project4	21	AP-B03	App Maker	Project3	21	GM-B03	Game Maker	Project3
22	AP-B05	App Maker	Project5	22	AP-B04	App Maker	Project4	22	GM-B04	Game Maker	Project4
23	AP-B06	App Maker	Project6	23	AP-B05	App Maker	Project5	23	GM-B05	Game Maker	Project5
24	AP-B07	App Maker	Project7	24	AP-B06	App Maker	Project6	24	GM-B06	Game Maker	Project6
25	AP-B08	App Maker	Project8	25	AP-B07	App Maker	Project7	25	GM-B07	Game Maker	Project7
26	AP-B09	App Maker	Project9	26	AP-B08	App Maker	Project8	26	GM-B08	Game Maker	Project8
27	GM-B01	Game Maker	Photogram	27	AP-B09	App Maker	Project9	27	GM-B09	Game Maker	Project9
28	GM-B02	Game Maker	Todo App	28	STEM-B01	Micro Bit	HelloWorld	28	STEM-B01	Micro Bit - Python	Countdown
29	GM-B03	Game Maker	Project3	29	STEM-B02	Micro Bit	Countdown	29	STEM-B02	Micro Bit - Python	ClearScreen
30	GM-B04	Game Maker	Project4	30	STEM-B03	Micro Bit	ClearScreen	30	STEM-B03	Micro Bit - Python	LoveMicrobit
31	GM-B05	Game Maker	Project5	31	STEM-B04	Micro Bit	LoveMicrobit	31	STEM-B04	Micro Bit - Python	MyGratexHappy
32	GM-B06	Game Maker	Project6	32	STEM-B05	Micro Bit	MyGratexHappy	32	STEM-B05	Micro Bit - Python	WakeUp
33	GM-B07	Game Maker	Project7	33	STEM-B06	Micro Bit	WakeUp	33	STEM-B06	Micro Bit - Python	Puzzle
34	GM-B08	Game Maker	Project8	34	STEM-B07	Micro Bit	Puzzle	34	STEM-B07	Micro Bit - Python	Voting
35	GM-B09	Game Maker	Project9	35	STEM-B08	Micro Bit	Voting	35	STEM-B08	Micro Bit - Python	BasicCalculator
36	GM-B10	Game Maker	Project10	36	STEM-B09	Micro Bit	TriangularCard	36	STEM-B09	Micro Bit - Python	SportCrunches

MYP Computer Science

Grade 6				Grade 7				Grade 8			
No	Short Code	Lesson Name	Topic	No	Short Code	Lesson Name	Topic	No	Short Code	Lesson Name	Topic
1	CS-T01	Theory of CS	Data representation	1	CS-T06	Theory of CS	Use of the hexadecimal system	1	CS-T11	Theory of CS	Logic gates and logic circuits
2	CS-T02	Theory of CS	The binary system	2	CS-T07	Theory of CS	Communication and internet technologies	2	CS-T12	Theory of CS	Logic gates
3	CS-T03	Theory of CS	Measurement of computer memories	3	CS-T08	Theory of CS	Data transmission	3	CS-T13	Theory of CS	Truth tables
4	CS-T04	Theory of CS	Example use of binary	4	CS-T09	Theory of CS	Error-checking methods	4	CS-T14	Theory of CS	The function of the six logic gates
5	CS-T05	Theory of CS	The hexadecimal system	5	CS-T10	Theory of CS	Input Technologies	5	CS-T15	Theory of CS	Logic circuits
6	CS-A01	Pseudocode	Project 1	6	CS-A05	Flowchart	Project 1	6	CS-T16	Theory of CS	Logic circuits in the real world
7	CS-A02	Pseudocode	Project 2	7	CS-A06	Flowchart	Project 2	7	CS-T17	Theory of CS	Logic circuits Project 1
8	CS-A03	Pseudocode	Project 3	8	CS-A07	Flowchart	Project 3	8	CS-T18	Theory of CS	Logic circuits Project 2
9	CS-A04	Pseudocode	Project 4	9	CS-A08	Flowchart	Project 4	9	CS-T19	Theory of CS	Logic circuits Project 3
10	ST-PA01	Studio Python	The Basics	10	ST-PA10	Studio Python	Conditional Expressions - if else	10	ST-PA19	Studio Python	Return Value
11	ST-PA02	Studio Python	Repeat Loops	11	ST-PA11	Studio Python	Conditional Expressions - if else	11	ST-PA20	Studio Python	Return Value
12	ST-PA03	Studio Python	Variables	12	ST-PA12	Studio Python	Boolean Logic	12	ST-PA21	Studio Python	Return Value
13	ST-PA04	Studio Python	Arrays	13	ST-PA13	Studio Python	While Loops	13	ST-PA22	Studio Python	Events
14	ST-PA05	Studio Python	For Loops	14	ST-PA14	Studio Python	Functions	14	ST-PA23	Studio Python	Events
15	ST-PA06	Studio Python	For Loops	15	ST-PA15	Studio Python	Parameters	15	ST-PA24	Studio Python	Events
16	ST-PA07	Studio Python	Helper Methods	16	ST-PA16	Studio Python	Comparison Operators	16	ST-PA25	Studio Python	Lists
17	ST-PA08	Studio Python	Conditional Expressions - if	17	ST-PA17	Studio Python	Comparison Operators 2	17	ST-PA26	Studio Python	Lists
18	ST-PA09	Studio Python	Conditional Expressions - if 2	18	ST-PA18	Studio Python	AND OR NOT	18	ST-PA27	Studio Python	Lists
19	ST-JA01	Studio JS	The Basics	19	ST-JA01	Studio JS	Conditional Expressions - if else	19	ST-JA19	Studio JS	Return Value
20	ST-JA02	Studio JS	Repeat Loops	20	ST-JA02	Studio JS	Conditional Expressions - if else	20	ST-JA20	Studio JS	Return Value
21	ST-JA03	Studio JS	Variables	21	ST-JA03	Studio JS	Boolean Logic	21	ST-JA21	Studio JS	Return Value
22	ST-JA04	Studio JS	Arrays	22	ST-JA04	Studio JS	While Loops	22	ST-JA22	Studio JS	Events
23	ST-JA05	Studio JS	For Loops	23	ST-JA05	Studio JS	Functions	23	ST-JA23	Studio JS	Events
24	ST-JA06	Studio JS	For Loops	24	ST-JA06	Studio JS	Parameters	24	ST-JA24	Studio JS	Events
25	ST-JA07	Studio JS	Helper Methods	25	ST-JA07	Studio JS	Comparison Operators	25	ST-JA25	Studio JS	Events
26	ST-JA08	Studio JS	Conditional Expressions - if	26	ST-JA08	Studio JS	Comparison Operators 2	26	ST-JA26	Studio JS	Lists
27	ST-JA09	Studio JS	Conditional Expressions - if 2	27	ST-JA09	Studio JS	AND OR NOT	27	ST-JA27	Studio JS	Lists
28	AP-I01	App Maker	Photogram	28	GM-I01	App Maker	Photogram	28	STEM-I01	Micro Bit	HelloWorld
29	AP-I02	App Maker	Todo App	29	GM-I02	App Maker	Todo App	29	STEM-I02	Micro Bit	Countdown
30	AP-I03	App Maker	Project3	30	GM-I03	App Maker	Project3	30	STEM-I03	Micro Bit	ClearScreen
31	AP-I04	App Maker	Project4	31	GM-I04	App Maker	Project4	31	STEM-I04	Micro Bit	LoveMicrobit
32	AP-I05	App Maker	Project5	32	GM-I05	App Maker	Project5	32	STEM-I05	Micro Bit	MyGratexHappy
33	AP-I06	App Maker	Project6	33	GM-I06	App Maker	Project6	33	STEM-I06	Micro Bit	WakeUp
34	AP-I07	App Maker	Project7	34	GM-I07	App Maker	Project7	34	STEM-I07	Micro Bit	Puzzle
35	AP-I08	App Maker	Project8	35	GM-I08	App Maker	Project8	35	STEM-I08	Micro Bit	Voting
36	AP-I09	App Maker	Project9	36	GM-I09	App Maker	Project9	36	STEM-I09	Micro Bit	TriangularCard

IGCSE Computer Science

Grade 9				Grade 10			
No	Short Code	Lesson Name	Topic	No	Lesson Name	Topic	
1	CS-T20	Theory of CS	Operating systems	1	CS-T29	Theory of CS	Programming languages
2	CS-T21	Theory of CS	Interrupts	2	CS-T30	Theory of CS	Interpreter and Translators
3	CS-T22	Theory of CS	Computer architecture	3	CS-T31	Theory of CS	Security and data integrity
4	CS-T23	Theory of CS	The fetch-execute cycle	4	CS-T32	Theory of CS	Security
5	CS-T24	Theory of CS	Input devices	5	CS-T33	Theory of CS	Loss of data and data corruption
6	CS-T25	Theory of CS	Output devices	6	CS-T34	Theory of CS	Firewalls and proxy servers
7	CS-T26	Theory of CS	File formats	7	CS-T35	Theory of CS	Security protocols
8	CS-T27	Theory of CS	Lossless and lossy file compression	8	CS-T36	Theory of CS	Encryption
9	CS-T28	Theory of CS	Memory and storage	9	CS-T37	Theory of CS	Applications
10	ST-PA28	Studio Python	Dictionaries	10	CS-T38	Theory of CS	Computer ethics
11	ST-PA29	Studio Python	Mathematical operations	11	CS-T39	Theory of CS	Theory of CS: Free software, freeware and shareware
12	ST-PA30	Studio Python	Mathematical operations	12	ST-PA38	Studio Python	Modules
13	ST-PA31	Studio Python	Debugging	13	ST-PA39	Studio Python	Modules
14	ST-PA32	Studio Python	Debugging	14	ST-PA40	Studio Python	Time and Datetime Modules
15	ST-PA33	Studio Python	Functions with Parameters	15	ST-PA41	Studio Python	Defining Classes
16	ST-PA34	Studio Python	Functions with Parameters	16	ST-PA42	Studio Python	Defining Classes
17	ST-PA35	Studio Python	Character String Methods	17	ST-PA43	Studio Python	Database
18	ST-PA36	Studio Python	Character String Methods	18	ST-PA44	Studio Python	Database
19	AP-I01	App Maker	Photogram	19	GM-I01	Game Maker	Color Puzzle
20	AP-I02	App Maker	Todo App	20	GM-I02	Game Maker	Image Match
21	AP-I03	App Maker	Project3	21	GM-I03	Game Maker	Game3
22	AP-I04	App Maker	Project4	22	GM-I04	Game Maker	Game4
23	AP-I05	App Maker	Project5	23	GM-I05	Game Maker	Game5
24	AP-I06	App Maker	Project6	24	GM-I06	Game Maker	Game6
25	AP-I07	App Maker	Project7	25	GM-I07	Game Maker	Game7
26	AP-I08	App Maker	Project8	26	GM-I08	Game Maker	Game8
27	AP-I09	App Maker	Project9	27	GM-I09	Game Maker	Game9
28	STEM-P10	Micro Bit - Python	Dancing Men	28	STEM-P10	Micro Bit - Python	Say/Direction
29	STEM-P11	Micro Bit - Python	Feelings_ReactionGame	29	STEM-P10	Micro Bit - Python	HowFast
30	STEM-P12	Micro Bit - Python	Kangaroo	30	STEM-P21	Micro Bit - Python	SOS
31	STEM-P13	Micro Bit - Python	Divisibility	31	STEM-P22	Micro Bit - Python	LightLevelSensor
32	STEM-P14	Micro Bit - Python	Divisibility	32	STEM-P14	Micro Bit - Python	QuizShow
33	STEM-P15	Micro Bit - Python	HotOrCold	33	STEM-P24	Micro Bit - Python	ColorfulCompass
34	STEM-P16	Micro Bit - Python	CatchBalloons	34	STEM-P25	Micro Bit - Python	BrightnessAdjustment
35	STEM-P17	Micro Bit - Python	BasicCalculator	35	STEM-P26	Micro Bit - Python	Magnetometer
36	STEM-P18	Micro Bit - Python	SportCrunches	36	STEM-P27	Micro Bit - Python	ColorfulBow

IB Computer Science

Grade 11				Grade 12			
No	Short Code	Lesson Name	Topic	No	Lesson Name	Topic	
1	CS-TA01	Theory of CS	Information representation	1	CS-TA10	Theory of CS	Data representation
2	CS-TA02	Theory of CS	Communication and internet technologies	2	CS-TA11	Theory of CS	Communication and internet technologies
3	CS-TA03	Theory of CS	Hardware	3	CS-TA12	Theory of CS	Boolean algebra and logic circuits
4	CS-TA04	Theory of CS	Logic gates and logic circuits	4	CS-TA13	Theory of CS	Boolean algebra and logic circuits
5	CS-TA05	Theory of CS	Processor fundamentals	5	CS-TA14	Theory of CS	Processor and computer architecture
6	CS-TA06	Theory of CS	System software	6	CS-TA15	Theory of CS	Processor and computer architecture
7	CS-TA07	Theory of CS	Data security, privacy and integrity	7	CS-TA16	Theory of CS	System software
8	CS-TA08	Theory of CS	Ethics and ownership	8	CS-TA17	Theory of CS	Security
9	CS-TA09	Theory of CS	Database and data modelling	9	CS-TA18	Theory of CS	Monitoring and control systems
10	AP-A01	App Maker	Photogram	10	GM-A01	Game Maker	Color Puzzle
11	AP-A02	App Maker	Todo App	11	GM-A02	Game Maker	Image Match
12	AP-A03	App Maker	Project3	12	GM-A03	Game Maker	Game3
13	AP-A04	App Maker	Project4	13	GM-A04	Game Maker	Game4
14	AP-A05	App Maker	Project5	14	GM-A05	Game Maker	Game5
15	AP-A06	App Maker	Project6	15	GM-A06	Game Maker	Game6
16	AP-A07	App Maker	Project7	16	GM-A07	Game Maker	Game7
17	AP-A08	App Maker	Project8	17	GM-A08	Game Maker	Game8
18	AP-A09	App Maker	Project9	18	GM-A09	Game Maker	Game9
19	AI-M01	AI-ML Maker	Emotion Analysis	19	AR-B01	AR-VR Maker	Project1
20	AI-M02	AI-ML Maker	Voice Analysis	20	AR-B02	AR-VR Maker	Project2
21	AI-M03	AI-ML Maker	Project3	21	AR-B03	AR-VR Maker	Project3
22	AI-M04	AI-ML Maker	Project4	22	AR-B04	AR-VR Maker	Project4
23	AI-M05	AI-ML Maker	Project5	23	AR-B05	AR-VR Maker	Project5
24	AI-M06	AI-ML Maker	Project6	24	AR-B06	AR-VR Maker	Project6
25	AI-M07	AI-ML Maker	Project7	25	AR-B07	AR-VR Maker	Project7
26	AI-M08	AI-ML Maker	Project8	26	AR-B08	AR-VR Maker	Project8
27	AI-M09	AI-ML Maker	Project9	27	AR-B09	AR-VR Maker	Project9
28	AI-A01	AI-ML Maker	Emotion Analysis	28	AR-A01	AR-VR Maker	Project1
29	AI-A02	AI-ML Maker	Voice Analysis	29	AR-A02	AR-VR Maker	Project2
30	AI-A03	AI-ML Maker	Project3	30	AR-A03	AR-VR Maker	

Codementum App Maker



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TODO APP 11 / 11

We finished the app, if the something goes wrong for you. You can examine the final code below.

Code Example: Copy

```
// Define design element
var toolbar = new Toolbar
var description = new Inp
```

If everything run its course, we completed our **Todo App** project.

Design Python JavaScript

Components

- Toolbar
- Button
- List
- Floating Action Button
- Labelled Input
- Date time picker
- Checkbox
- Radio Button
- Toggle
- Text box
- Heading
- Select
- Image
- Link
- Spacer

Plugins

- SQLite
- Camera

Services

- Weather

Page 1

Todo App

Description

October 16, 2020

Select

SAVE

List

- List Item
- List Item

Toolbar

ID / Identification: page1_toolbar1

Toolbar Color: Tertiary

Title: Todo App

Title Size: Default

Title Align: Start

Delete Toolbar element

Codementum Game Maker



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COLOR PUZZLE 3 / 11

Let's define scene and design elements

Code Example: [Copy](#)

```
// Define the scene and  
var mainScene = new Scene  
var bg = new Background
```

When you run the game, the design elements will be shown on the scene except the ColorGrid.

Background

Design **Python** **JavaScript**

Backgrounds

- jungle
- icedriver
- frozen2
- frozen
- trees1
- trees2
- trees3
- tree

Assets

- Arrow Right
- enemy
- cannon
- bubbles
- obstacle1
- obstacle2
- chicken
- jetpack
- arrow
- round
- rocket
- coin
- heart

Components

- button
- text
- timer
- Color Grid
- Random Images
- Image Puzzle

Sounds

- Jump 01
- Jump 15
- Enlarge
- Slip
- DM-CGS-1
- DM-CGS-2
- DM-CGS-3
- DM-CGS-4

button

ID / Identification: button-2

Content: Mistake 0

Background Color:

Content Color:

X Position: 110.7

Y Position: 369.7

Width: 65.0

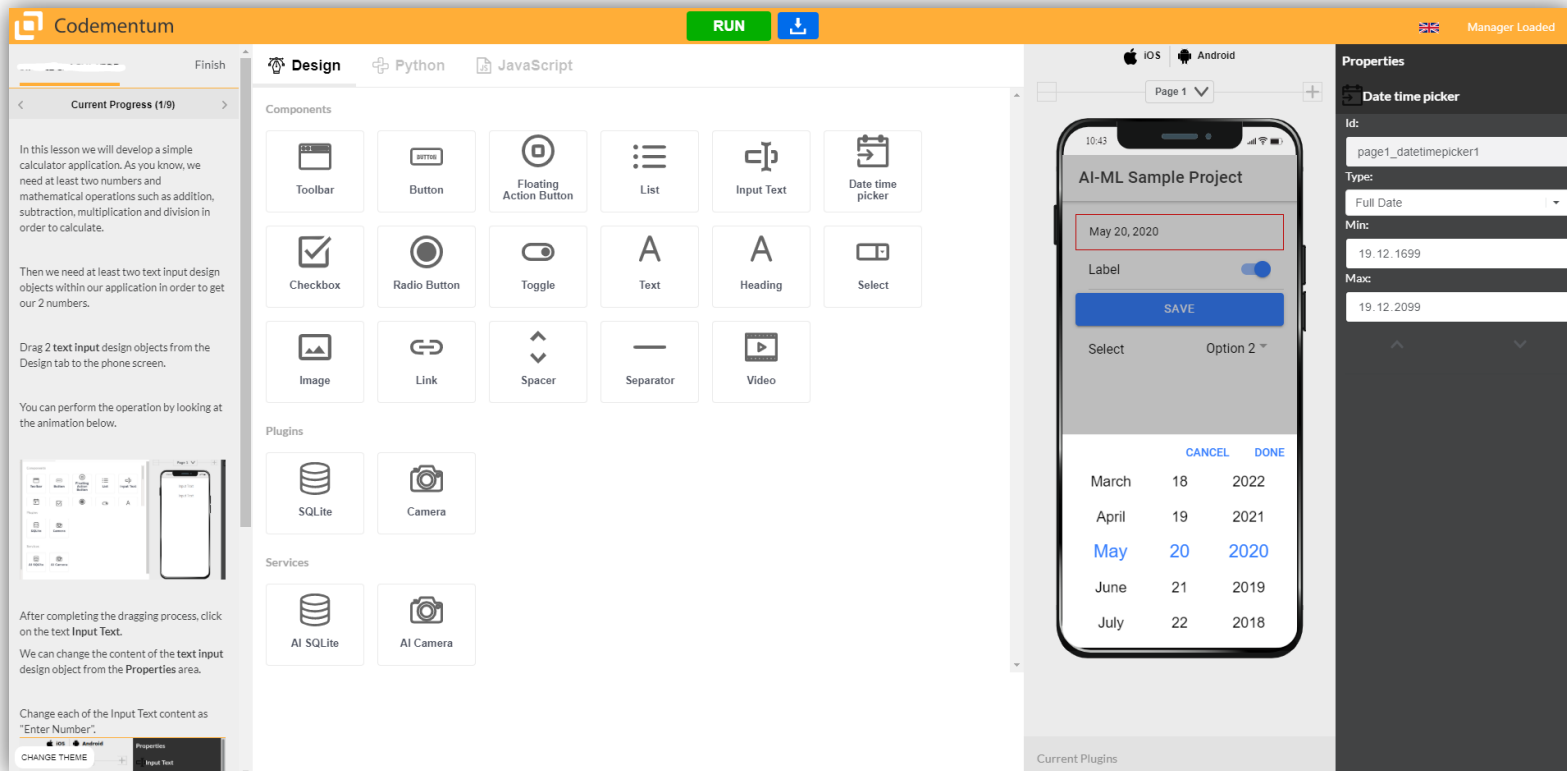
Delete button element

Preview

Target Color

Mistake 0

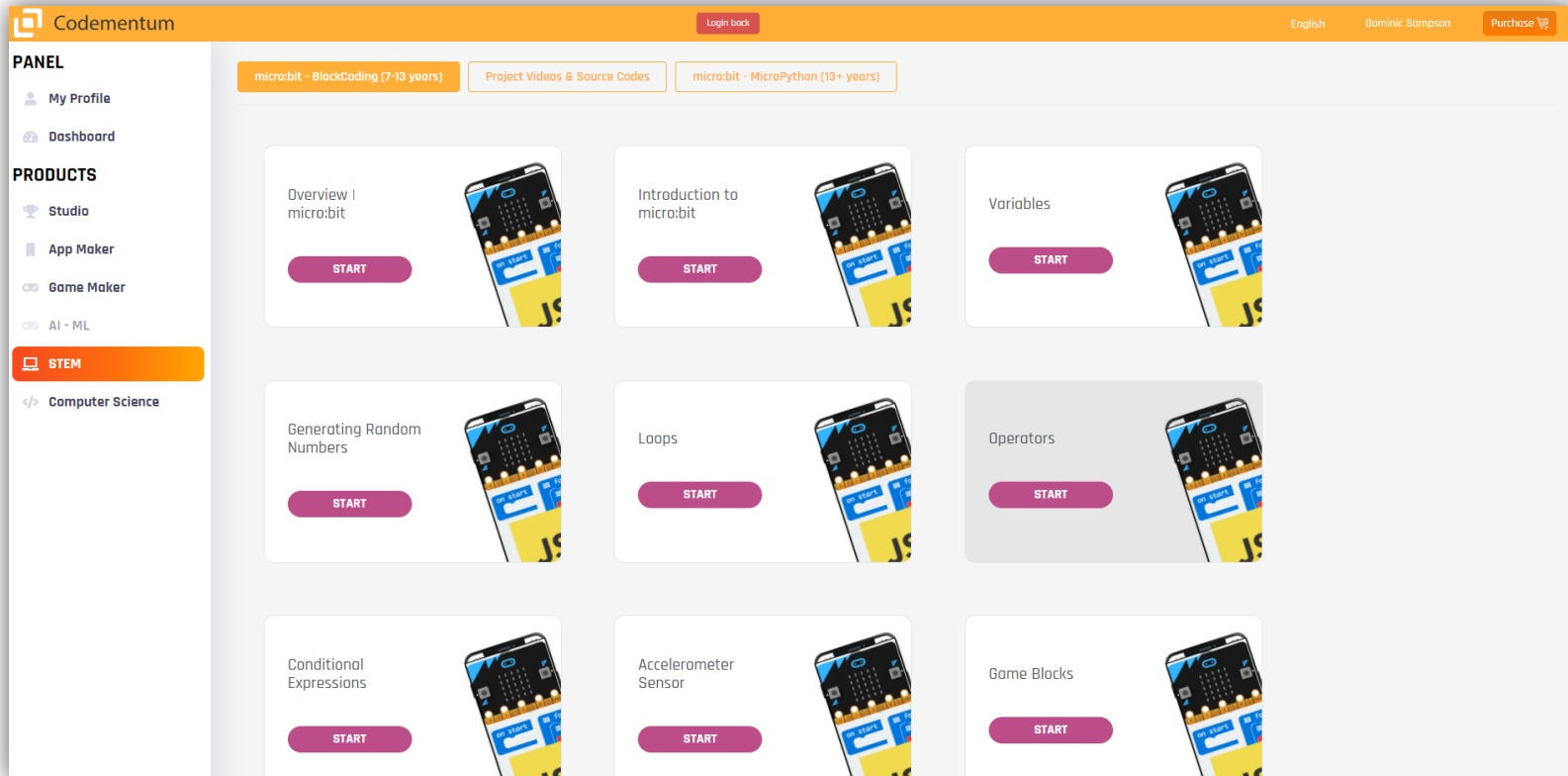
Codementum AI-ML Maker



Codementum STEM



Write codes for **electronic devices!**



Codementum Computer Science

Exercise for **coding exams!**

The screenshot shows the Codementum web application interface. At the top, there's an orange header bar with the Codementum logo, a 'Login back' button, and user information (English, Dominic Sampson) along with a 'Purchase' button. On the left, a sidebar contains a 'PANEL' section with 'My Profile' and 'Dashboard' links, and a 'PRODUCTS' section with icons for Studio, App Maker, Game Maker, AI - ML, and STEM. The 'Computer Science' product is highlighted in orange. The main content area is titled 'Grade 6+' and displays eight chapter cards in a 2x4 grid. Each card has a title, a small icon of a person at a computer, and a 'START' button. The chapters are: Chapter 1: Data Representation, Chapter 2: Communication & Internet Technologies, Chapter 3: Logic Gates & Circuits, Chapter 4: Operating System & Computer Architecture, Chapter 5: Input & Output Devices, Chapter 6: Memory & Data Storage, Chapter 7: High and Low-Level Languages, and Chapter 8: Security and Ethics.

Codementum English Dominic Sampson Purchase

PANEL

- My Profile
- Dashboard

PRODUCTS

- Studio
- App Maker
- Game Maker
- AI - ML
- STEM
- Computer Science**

Grade 6+

CHAPTER 1: DATA REPRESENTATION START

CHAPTER 2: COMMUNICATION & INTERNET TECHNOLOGIES START

CHAPTER 3: LOGIC GATES & CIRCUITS START

CHAPTER 4: OPERATING SYSTEM & COMPUTER ARCHITECTURE START

CHAPTER 5: INPUT & OUTPUT DEVICES START

CHAPTER 6: MEMORY & DATA STORAGE START

CHAPTER 7: HIGH AND LOW-LEVEL LANGUAGES START

CHAPTER 8: SECURITY AND ETHICS START

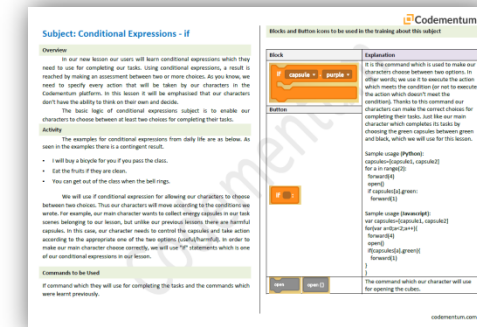
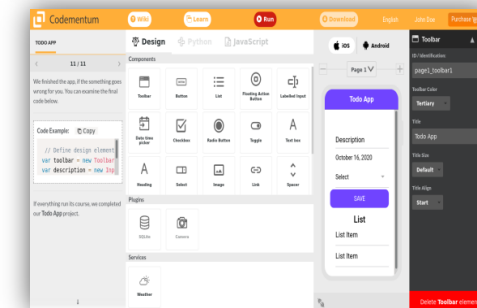
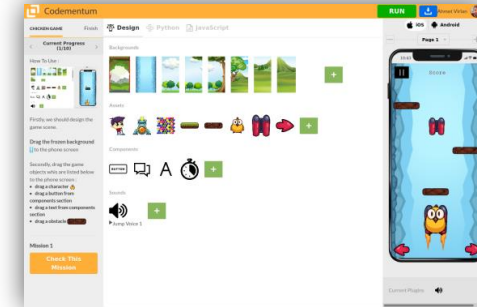
Our Magic Formula

We gamified all the subjects of Python and Javascript programming languages and we provide real coding education.

We provide block-based and text-based coding training in a synchronized way for the first time in the world. Thus, students receive a more effective and faster coding education.

Students learn to develop mobile games and mobile applications (platform-independent, iOS & Android) with the coding education they receive.

We prepare our students for the future by teaching them Artificial Intelligence & Machine Learning.



Teacher Guide

Subject: Conditional Expressions - if

Overview

In our new lesson our users will learn conditional expressions which they need to use for completing our tasks. Using conditional expressions, a result is reached by making an assessment between two or more choices. As you know, we need to specify every action that will be taken by our characters in the Codementum platform. In this lesson it will be emphasised that our characters don't have the ability to think on their own and decide.

The basic logic of conditional expressions subject is to enable our characters to choose between at least two choices for completing their tasks.

Activity

The examples for conditional expressions from daily life are as below. As seen in the examples there is a contingent result.

- I will buy a bicycle for you if you pass the class.
- Eat the fruits if they are clean.
- You can get out of the class when the bell rings.

We will use if conditional expression for allowing our characters to choose between two choices. Thus our characters will move according to the conditions we wrote. For example, our main character wants to collect energy capsules in our task scenes belonging to our lesson, but unlike our previous lessons there are harmful capsules. In this case, our character needs to control the capsules and take action according to the appropriate one of the two options (useful/harmful). In order to make our main character choose correctly, we will use "if" statements which is one of our conditional expressions in our lesson.

Commands to be Used

If command which they will use for completing the tasks and the commands which were learnt previously.

Blocks and Button icons to be used in the training about this subject

Block	Explanation
	It is the command which is used to make our characters choose between two options. In other words; we use it to execute the action which meets the condition (or not to execute the action which doesn't meet the condition). Thanks to this command our characters can make the correct choices for completing their tasks. Just like our main character which completes its tasks by choosing the green capsules between green and black, which we will use for this lesson.
	Sample usage (Python): capsules=[capsule1, capsule2] for a in range(2): forward(4) open() if capsules[a].green: forward(1) Sample usage (JavaScript): var capsules=[capsule1, capsule2] for(var a=0;a<2;a++){ forward(4) open() if(capsules[a].green){ forward(1) } }
	The command which our character will use for opening the cubes.

codementum.com

BLOCK	Explanation
Usage	

PYTHON	Explanation
Usage	

JAVASCRIPT	Explanation
Usage	

Erroneous writing forms		
<table border="1"> <thead> <tr> <th>Python</th> </tr> </thead> <tbody> <tr> <td> </td> </tr> </tbody> </table>	Python	
Python		

Erroneous writing forms		
<table border="1"> <thead> <tr> <th>JavaScript</th> </tr> </thead> <tbody> <tr> <td> </td> </tr> </tbody> </table>	JavaScript	
JavaScript		

Sample Solution: (Without using repeat) Scene 13

Algorithm	Block	Python	JavaScript
• Start • Move 2 squares forward • Move up • Move down • Move 1 square forward • Move 2 squares forward • Move up • Move down • Move 1 square forward		<pre>forward(2) forwardUp() forwardDown() forwardUp() forwardDown() forwardUp() forwardDown() forwardUp() forwardDown() forwardUp()</pre>	<pre>forward(2) forwardUp() forwardDown() forwardUp() forwardDown() forwardUp() forwardDown() forwardUp() forwardDown() forwardUp()</pre>

Sample Solution: (By using repeat) Scene 13

Algorithm	Block	Python	JavaScript
• Start • 2 times within repeat • Move 2 squares forward • Move up • Move down • Move 1 square forward		<pre>repeat 2: forward(2) forwardUp() forwardDown() forwardUp()</pre>	<pre>repeat 2: forward(2) forwardUp() forwardDown() forwardUp()</pre>

Codementum
The Easiest Way to Learn Coding

PANEL

- My Profile
- Dashboard
- Awards

TEACHER

- Help Center
- My Classes
- My Students**
- Project Solutions

PRODUCTS

- Studio
- App Maker
- Game Maker
- AI - ML
- STEM
- Computer Science

free: 42 / 1000, paid: 147 / 500

TEACHER

Back

STUDENT REPORT

Student Username: sam
 Student ID:
 School Name: Metropolitan School Frankfurt
 Class Name: G4

Studio

Score of challenges

Challenge	Score
THE BASICS	1/100
REPEAT LOOPS	1/102
VARIABLES	1/81
ARRAYS	1/10

Average stars

Count of stars per page

Tutorial Page	1	2	3	4	5	6	7	8	9	10	Total	Average
The Basics	3	3	3	3	3	3	3	3	3	3	27	3
Repeat Loops	3	3	3	3	3	3	3	3	3	3	25	3
Variables	3	3	3	3	2	2	2	2	2	2	22	2
Arrays	3	3	3	3	3	2	2				19	2

Time spent and number of attempts comparison

Average attempts

Total attempts per page

Tutorial Page	1	2	3	4	5	6	7	8	9	10	Total	Average
The Basics	1	2	1	1	3	4	2	1	4	19	2	
Repeat Loops	2	2	5	7	2	2	5	1	9	35	3	
Variables	2	5	4	3	2	4	2	2	4	28	3	
Arrays	1	18	3	1	2	2	9			36	5	

Average time spent

Total time spent per page

Tutorial Page	1	2	3	4	5	6	7	8	9	10	Total	Average
The Basics	47	12	26	33	75	112	43	75	132		554	61
Repeat Loops	57	30	91	98	68	77	109	91	398		1016	103
Variables	32	48	77	109	184	35	72	149	132		1161	124
Arrays	10	145	100	83	131	96	225				841	100

App Maker

There is no data for Appmaker. The student must be start to use Appmaker in order to have data.

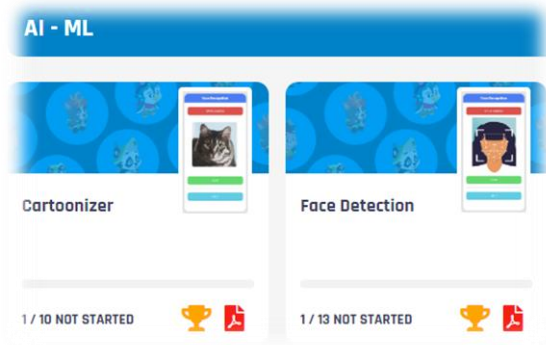
Game Maker

New features

We've developed a "Code suggestion" feature to make it easier for students to transition to text-based coding.



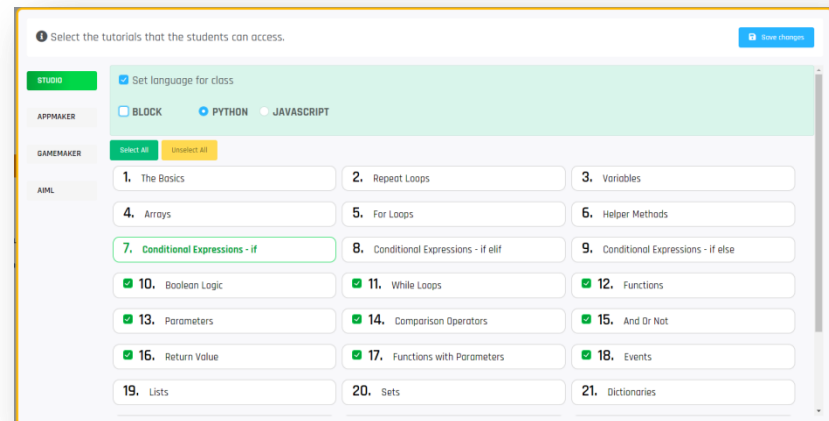
Our Codementum AI-ML project is now active.



Block mode turn off and the main character go very fast feature.



We have developed a "Set your own content" feature for teachers. Teachers can now assign the content they want to the classes.



Certificate



Review

“The website is truly amazing. There are so many activities for all age ranges. The activities are not just classwork, there are ideas to teach after school clubs with videos and lesson plans. So much effort has gone into designing a website that is easy to follow and understand Computing which many people have found difficult to comprehend.”

L.Gomez
Computer Science Teacher



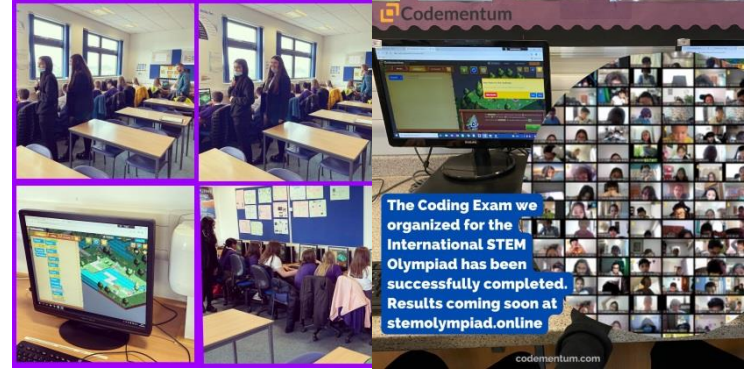
“Codementum is an excellent tool for both beginners and those wish to expand their coding knowledge. They’ve managed to make a fun, practical and unique way to learn coding which will always leave the user wanting to come back and learn some more.”

S. Brown
Computer Science Teacher



“One place to control your teaching activities and very user-friendly interface to learn to code.”

M. Britton
Computer Science Teacher



Bristol
Grammar
School



Contact Us

Codementum Education Technologies

info@codementum.com

codementum.com