Introduction to C

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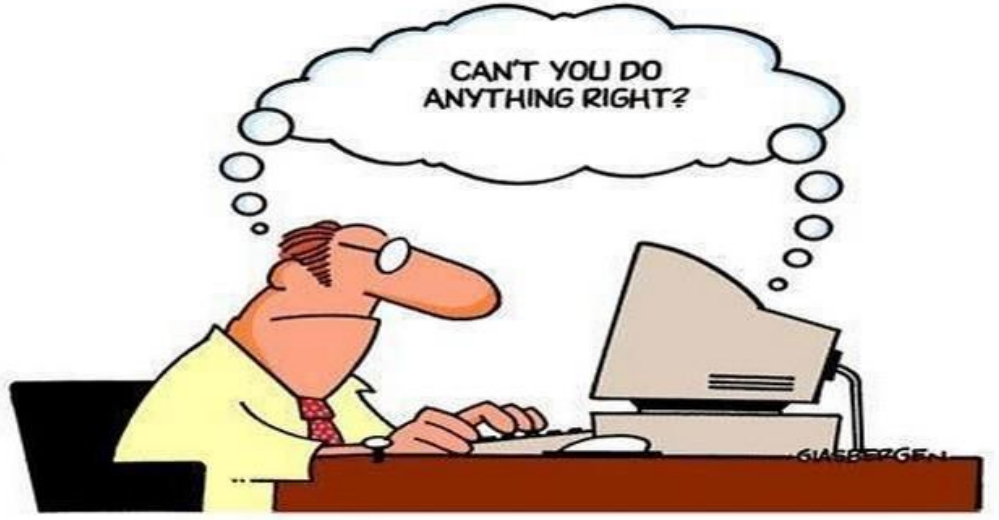
What is Programming?

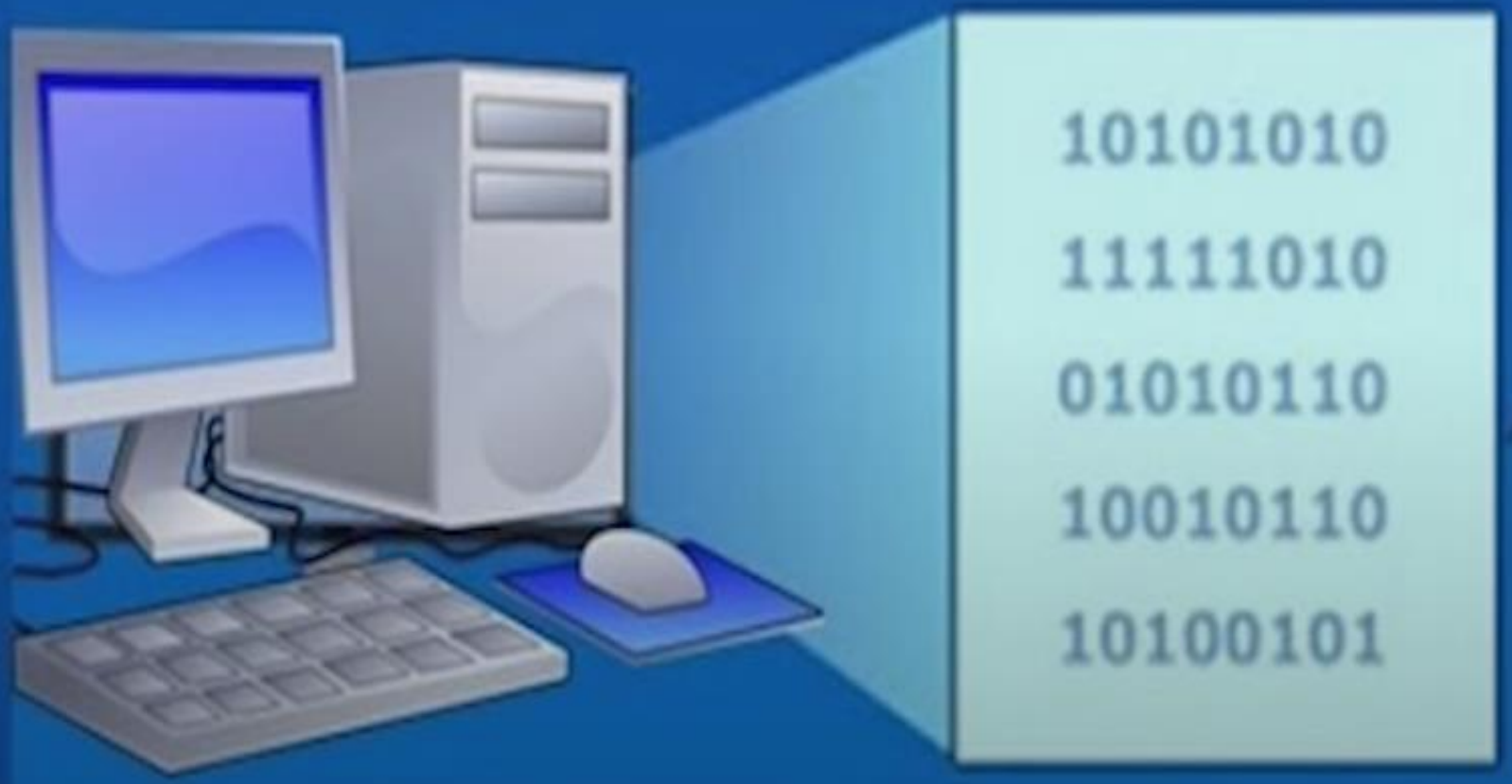
Computer programming is a medium for us to communicate with computers. Just like we use Bangla, English , Hindi and so on to communicate with each other. Programming is the way to us to deliver some instruction to computer.



How Computers Understand Language

Computer
0 1
ABCDEFGHIJK
MNOPQRSTUV
WXYZ

Computers understand only binary



10101010
11111010
01010110
10010110
10100101

Binary Language

Character	Binary Code	Character	Binary Code	Character	Binary Code	Character	Binary Code	Character	Binary Code
A	01000001	Q	01010001	g	01100111	w	01110111	-	00101101
B	01000010	R	01010010	h	01101000	x	01111000	.	00101110
C	01000011	S	01010011	i	01101001	y	01111001	/	00101111
D	01000100	T	01010100	j	01101010	z	01111010	0	00110000
E	01000101	U	01010101	k	01101011	!	00100001	1	00110001
F	01000110	V	01010110	l	01101100	"	00100010	2	00110010
G	01000111	W	01010111	m	01101101	#	00100011	3	00110011
H	01001000	X	01011000	n	01101110	$	00100100	4	00110100
I	01001001	Y	01011001	o	01101111	%	00100101	5	00110101
J	01001010	Z	01011010	p	01110000	&	00100110	6	00110110
K	01001011	a	01100001	q	01110001	'	00100111	7	00110111
L	01001100	b	01100010	r	01110010	(	00101000	8	00111000
M	01001101	c	01100011	s	01110011	)	00101001	9	00111001
N	01001110	d	01100100	t	01110100	*	00101010	?	00111111
O	01001111	e	01100101	u	01110101	+	00101011	@	01000000
P	01010000	f	01100110	v	01110110	,	00101100	_	01011111

Computer Languages

Humans

Computers

How can humans “talk to” (instruct) computers?

Programming is the process of creating a set of instructions that tell a computer how to perform a task. Programming can be done using a variety of computer "languages," such as SQL, Java, Python, C, C++ and many more.

PASCAL
node
JS
php
C
JS
C++
RAILS
Microsoft®
.NET
TS
C#
HTML
Java
Lua
free pascal
coding180.com

Where Programming is use??

cam 1
cam 2
cam 3
Room Temperature
Living room
Bedroom
Nursery
Smart Home
Room Lighting
Alarm system
Video Security
Room Temperature

Games

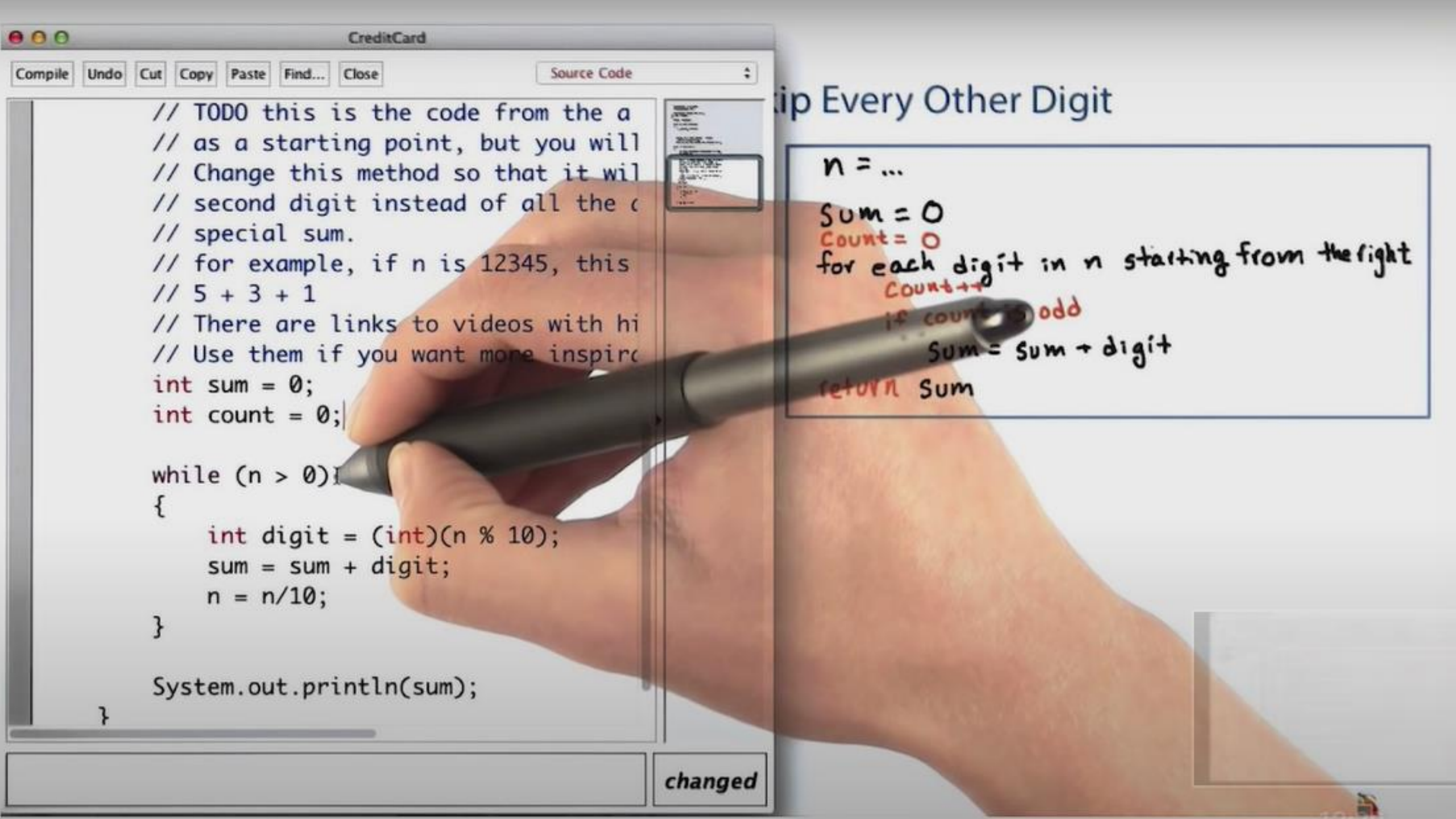
THOMSON
SMART TV
Home
Paris
Thu
36°
28°
03:26 pm
AV 2
HDMI 1
HDMI 2
HDMI 3
Live Channels
LIVE SPORTS
hotstar
NETFLIX
YouTube
Radioline
TED
THOMSON

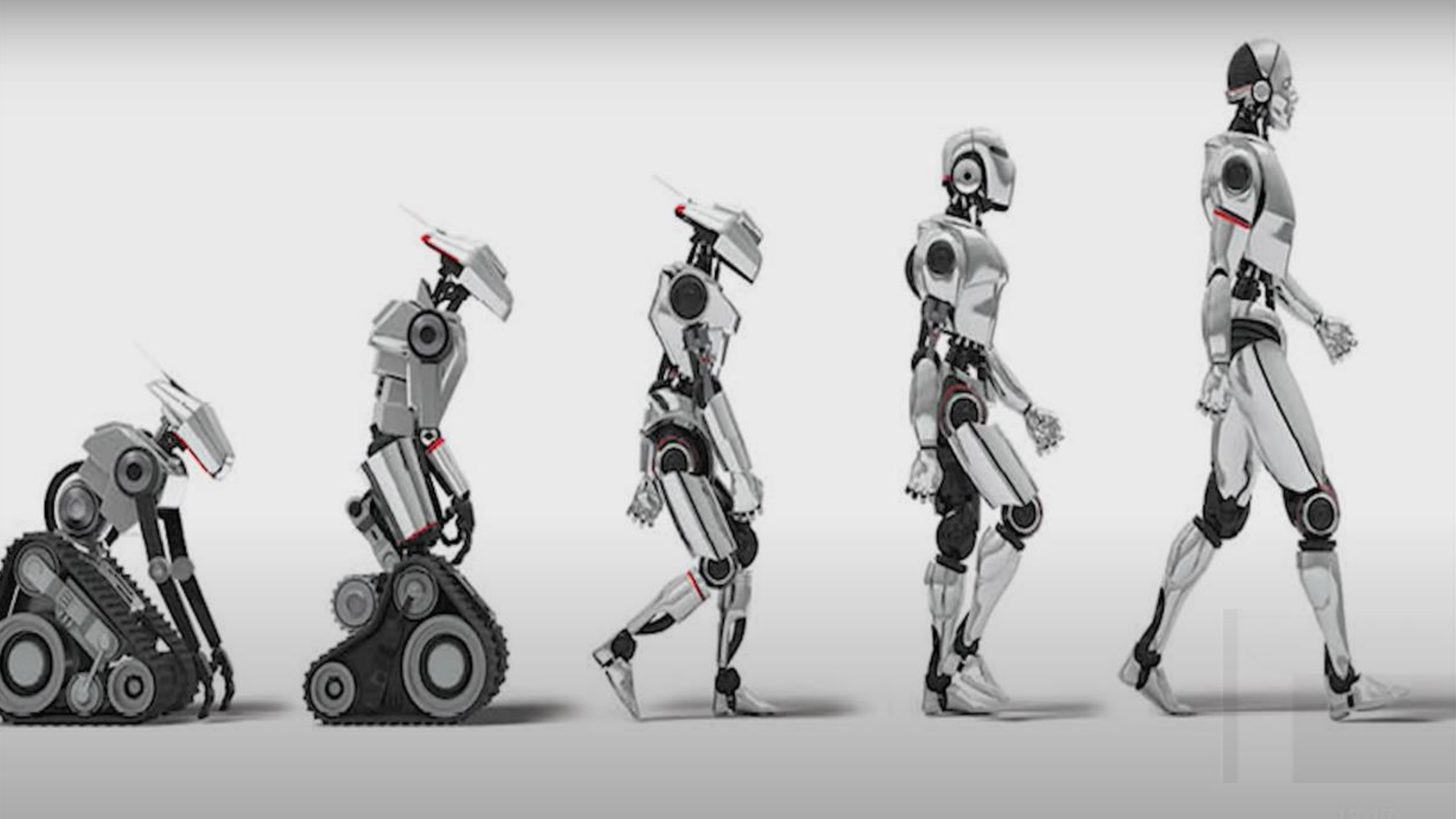
On TV
FOR YOU
Samsung
SMART TV
HDMI1
COMBAT STORIES
ONE MAN ONLY
Guide
Timeline View
Trending

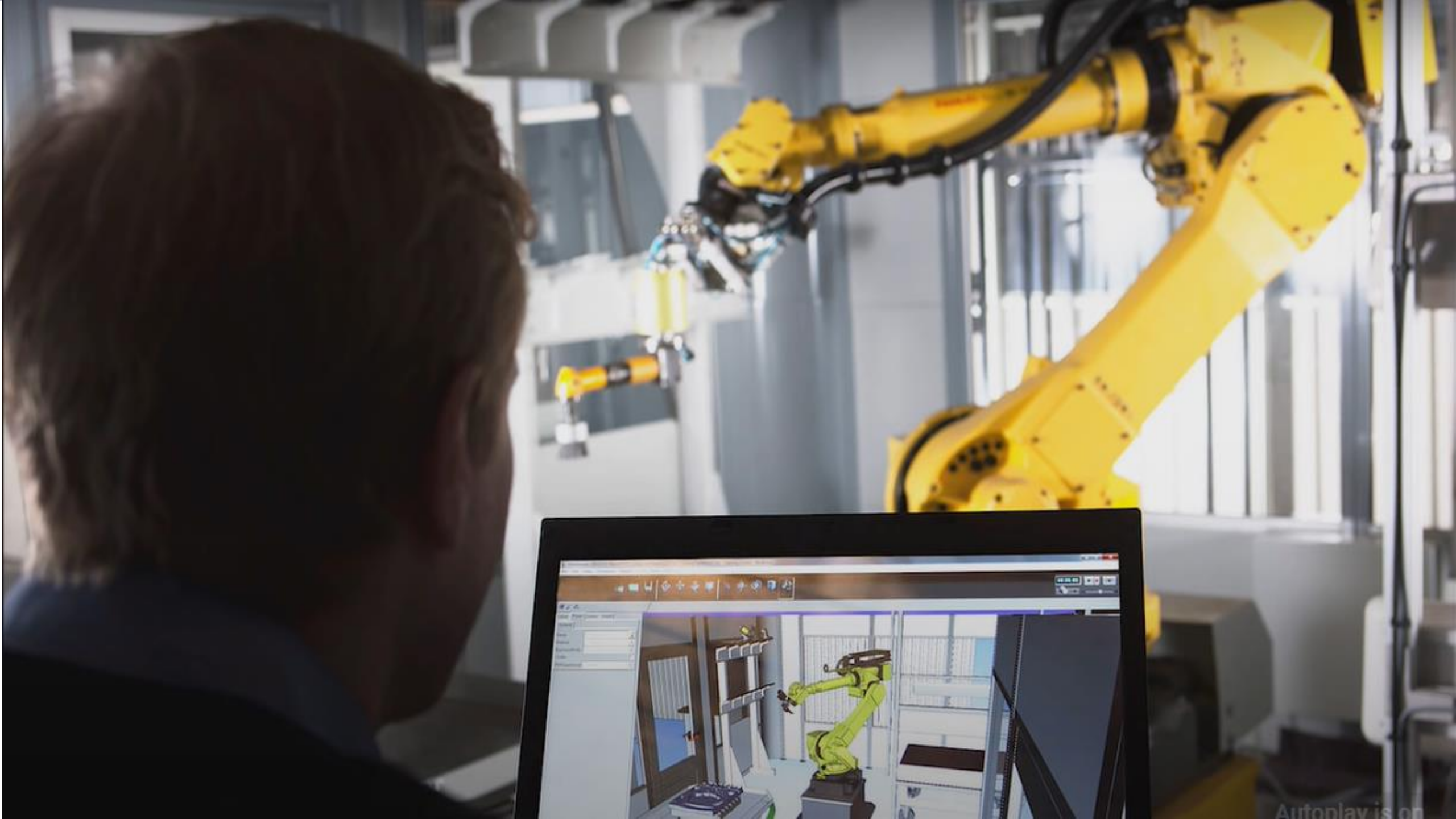
SAMSUNG
SAMSUNG

Room Temperature
Your living room temperature is
24.6°C
Humidity 34%
20°C from 08:00 to 17:00
24°C from 17:00 to 23:00
Program

SMART HOME
FIRST FLOOR
10:52
LOCK GARAGE


CreditCard
Compile
Undo
Cut
Copy
Paste
Find...
Close
Source Code
// TODO this is the code from the a
// as a starting point, but you will
// Change this method so that it wil
// second digit instead of all the d
// special sum.
// for example, if n is 12345, this
// 5 + 3 + 1
// There are links to videos with hi
// Use them if you want more inspirc
int sum = 0;
int count = 0;
while (n > 0)
{
int digit = (int)(n % 10);
sum = sum + digit;
n = n/10;
}
System.out.println(sum);
}
changed
ip Every Other Digit
n = ...
Sum = 0
Count = 0
for each digit in n starting from the right
Count++
odd
Sum = Sum + digit
return Sum

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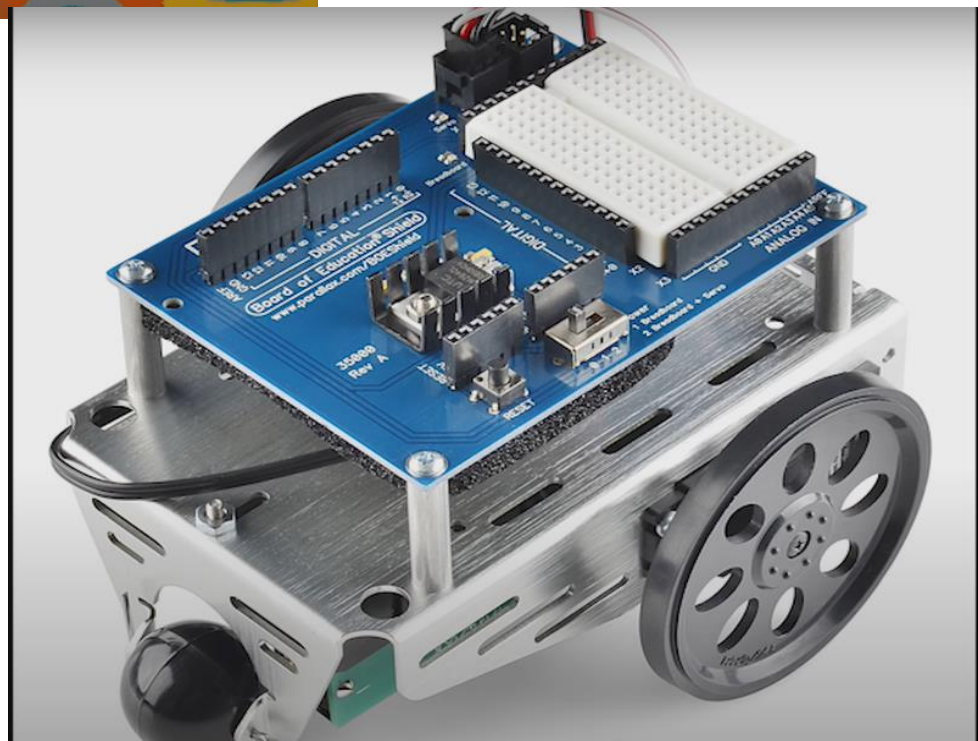
ARDUINO

Programming Languages



Basic Programming should learn

History of C

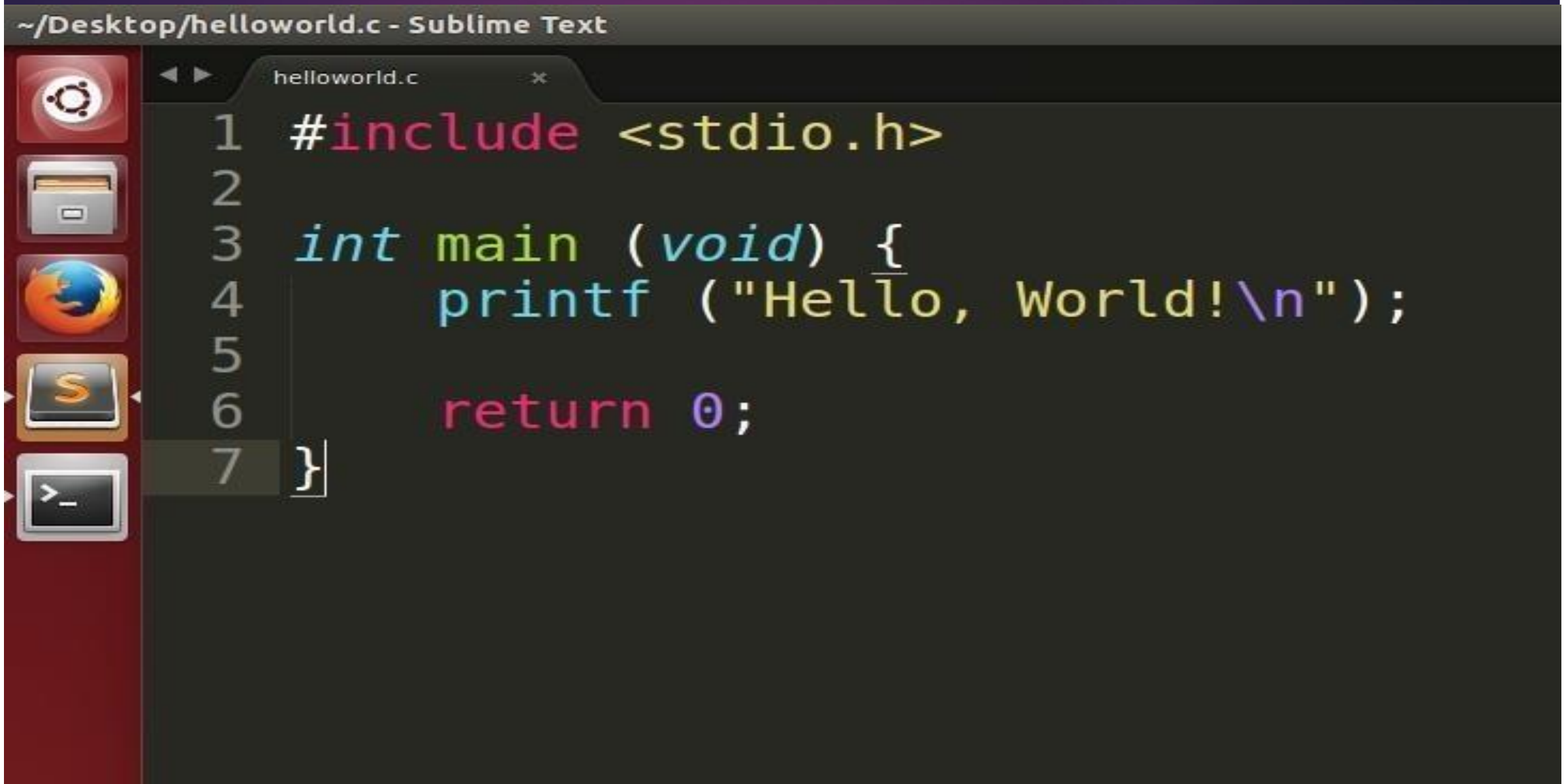
- The Beginning. The C programming language came out of **Bell** Labs in the early 1970s. According to the **Bell** Labs paper The Development of the C Language by **Dennis Ritchie**, "The C programming language was devised in the early 1970s as a system implementation language for the nascent Unix operating system.

Advantages:

- 1.1. Building block for many other **programming** languages. ...
- 1.2. Powerful and efficient **language**. ...
- 1.3. Portable **language**. ...
- 1.4. Built-in functions. ...
- 1.5. Quality to extend itself. ...
- 1.6. Structured **programming language**. ...
- 1.7. Middle-level **language**. ...
- 1.8. Old and fastest

This is one kind of Alphabet

Example of C code



Structure

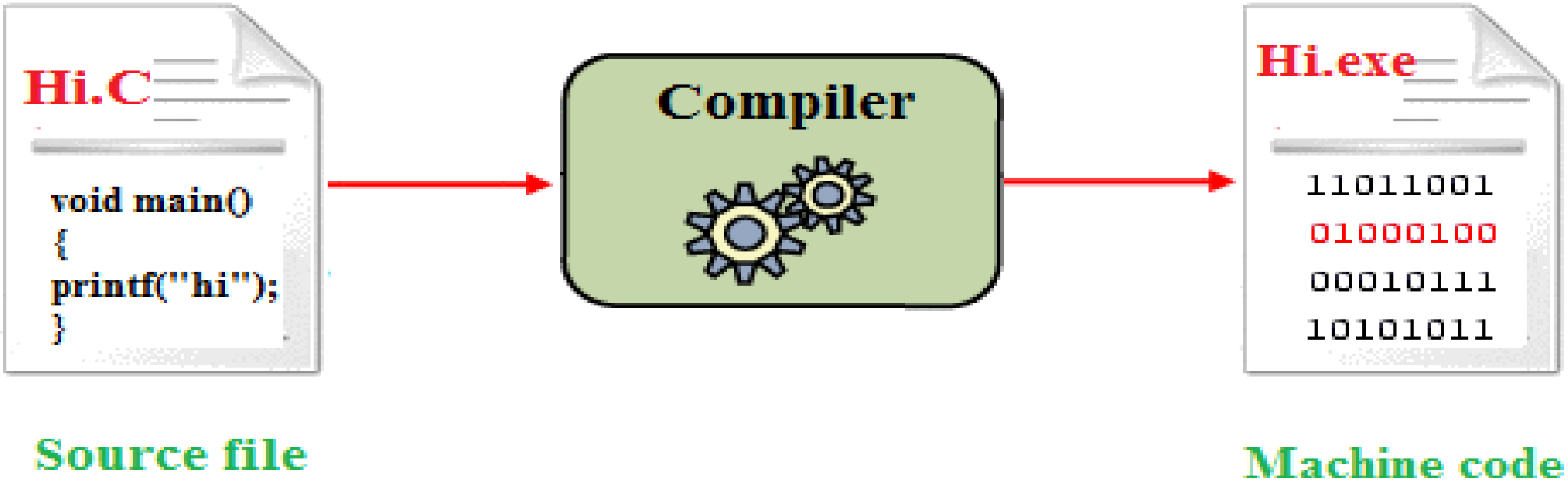
~/Desktop/helloworld.c - Sublime Text

helloworld.c

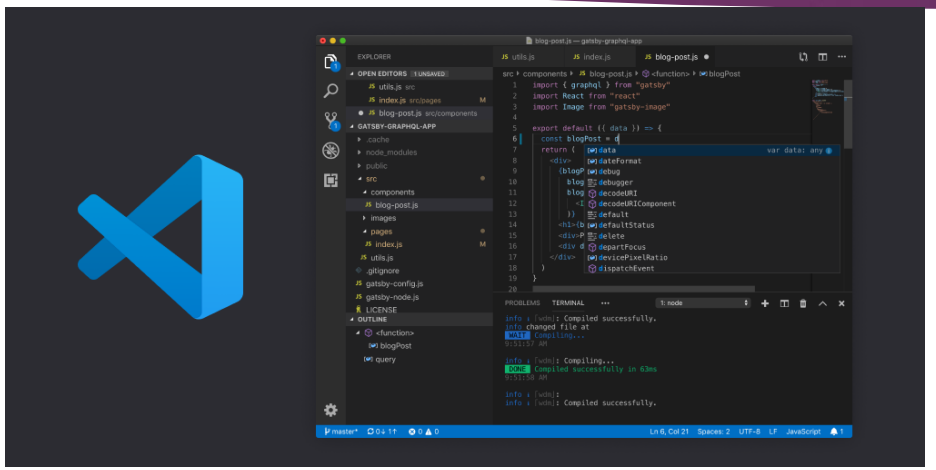
```c
#include <stdio.h>

int main (void) {
    printf ("Hello, World!\n");

    return 0;
}
```

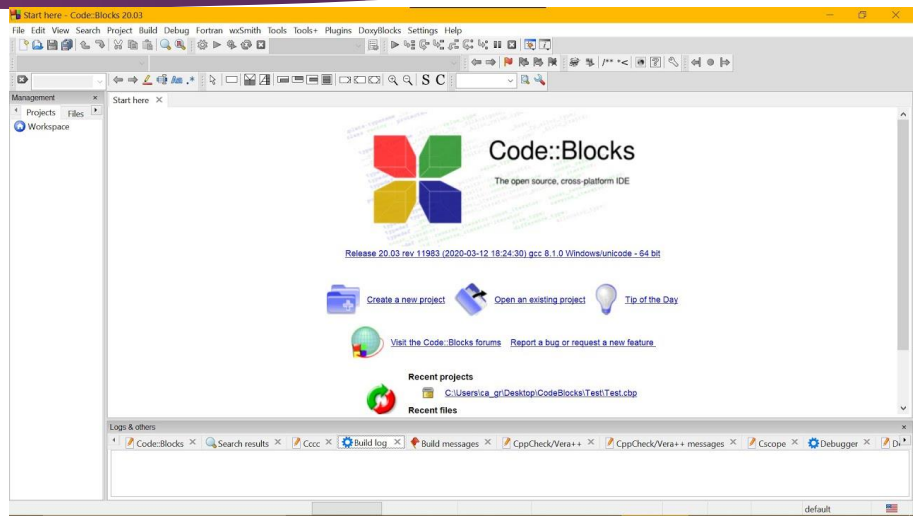
Structure of C Program

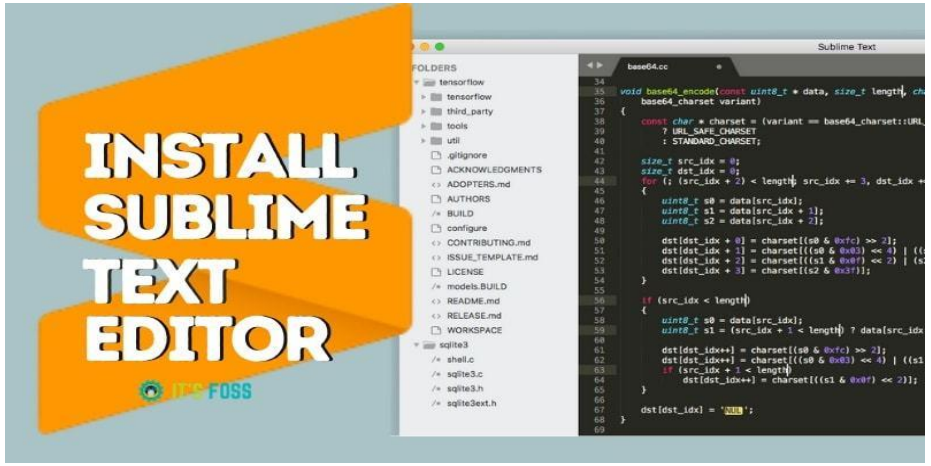
Header	#include <stdio.h>
main()	int main() {
Variable declaration	int a = 10;
Body	printf("%d ", a);
Return	return 0; }

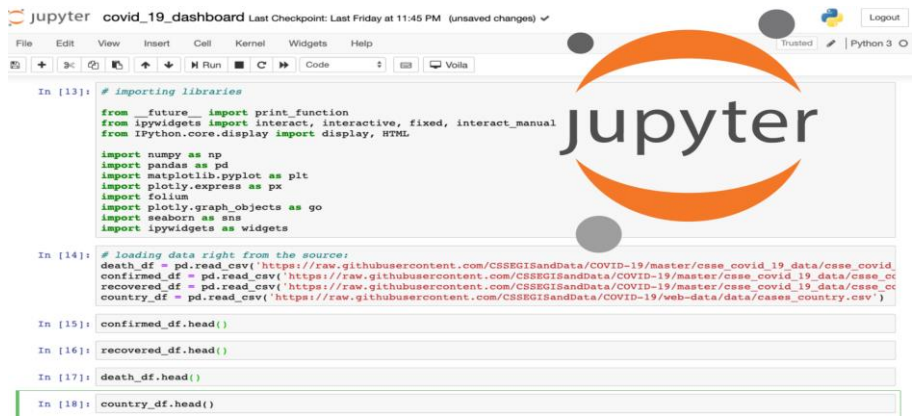

Hi.C
void main()
{
printf("hi");
}
Compiler
Hi.exe
11011001
01000100
00010111
10101011
Source file
Machine code

Some IDE / code editors







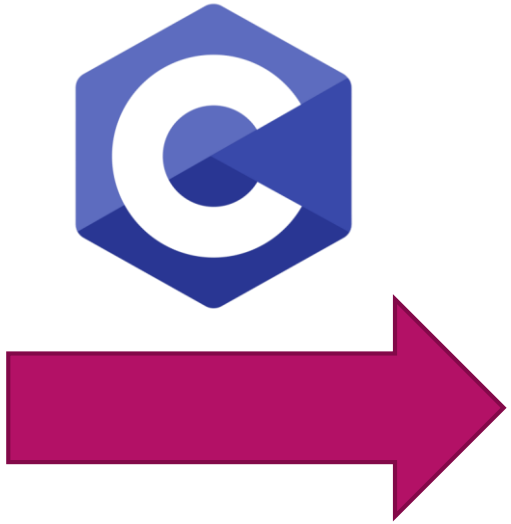


Some awesome projects

Lets write a C program to solve a problem

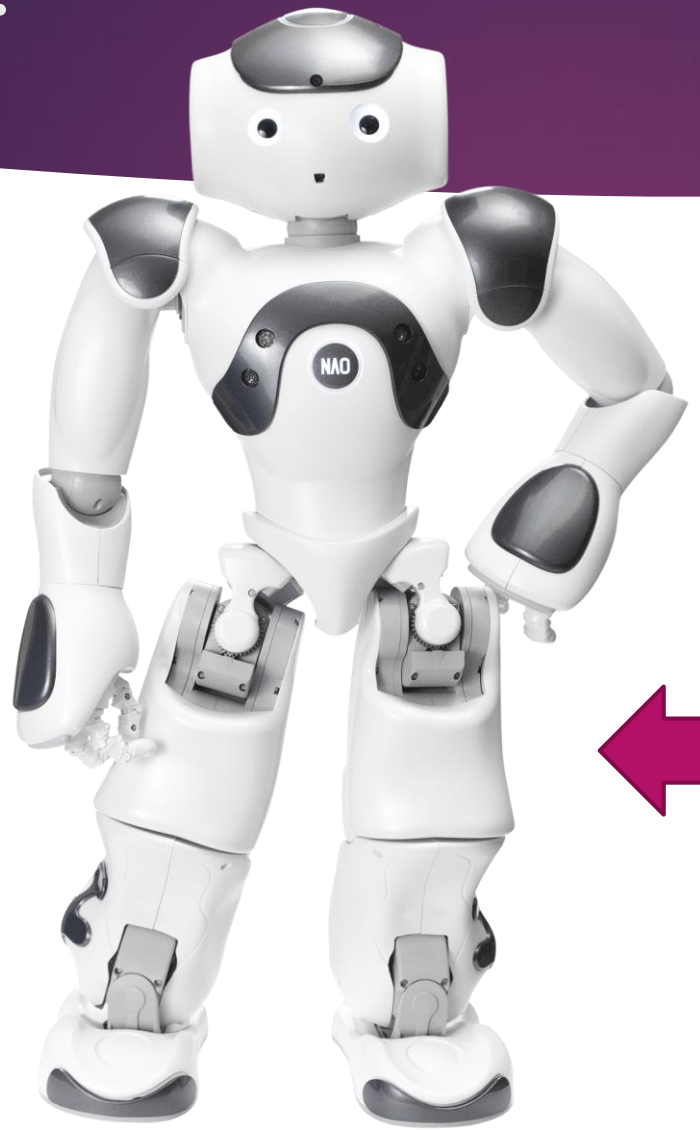
- Lets say, Once **Mark Zuckerberg's** wife **Priscilla Chan** told to Mark to go to the market to buy some

Vegetables & some products. But the condition is that she needs **carrots** if **Mark** doesn't find the **Potato** and she needs eggs if he doesn't find any **Apple**. But **Mark** is very lazy and clever, he wants to sleep. So, How will he solve the problem being his wife happy? He knows C programming.



NAO

Solution:




```c
#include <stdio.h>

int main()

{
    char product;

    printf("Robot finding...\n");
    scanf("%c",&product);

    if (product == 'p'){
        printf("Robot has bought Potatos!");
    }

    else if (product == '0'){
        printf("Robot has bought Carrots!");
    }

    else if (product == 'e'){
        printf("Robot has bought Eggs!");
    }

    else{
        printf("Robot has bought Apple!");
    }

    return 0;
}
```

Thank you!

Any Questions?