11TH AUS HIGH SCHOOL COMPUTING CAMP

AUS SUMMER CAMP

KRISH HARIKRISHNAN
GRADE 10
INDIAN HIGH SCHOOL,DUBAI

ACKNOWLEDGEMENT

I WOULD LIKE TO EXTEND MY GRATITUDE TO AUS AND DR. FADI ALOUL FOR GIVING ME THIS WONDERFUL OPPORTUNITY TO BE A PART OF THE CAMP.

I WOULD ALSO LIKE TO THANK MR. AHMAD AL NABULSI, MS.HEND ELGHAZALY, MR. MOHAMMED ELNAWAWY, MS. SALSABEEL SHAPSOUGH,MR. SAMEER ALAWNAH AND MR. WISSAM ABOU KHREIBE FOR THE WONDERFUL SESSIONS AND FOR GUIDING US.

ABOUT ME

MY NAME IS KRISH HARIKRISHNAN, I AM STUDYING IN GRADE 10. MY AMBITION IS TO BE A ROBOTICS ENGINEER. I HAVE ALWAYS LOVED MATHS, SCIENCE AND COMPUTER SCIENCE. THIS COMPUTING CAMP WAS HIGHLY INSIGHTFUL AND INFORMATIVE. IT GAVE ME THE OPPORTUNITY TO DELVE INTO THE ADVANCED CONCEPTS OF COMPUTER SCIENCE.

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DAY 1

PYTHON PROGRAMMING

THE GOAL WAS TO UNDERSTAND THE PYTHON PROGRAMMING LANGUAGE AND THE DIFFERENT KINDS OF FUNCTIONS.

WE LEARNT ABOUT WHILE LOOP, FOR LOOP, IF-ELSE STATEMENTS, ETC.

TOPICS COVERED: PRINT, IF-ELSE, FOR LOOPS, WHILE LOOPS, FUNCTIONS

```python
no1=float(input("Enter no1: "))
no2=float(input("Enter no2: "))
if(no1>no2):
   print(no1)
elif (no1<no2):
   print(no2)
else:
   print("numbers are equal")
```

```
Enter no1: 7
Enter no2: 8
8.0
```

```python
name=input("Enter full name: ")
age=input("Enter age: ")
grade=input("Enter grade: ")

print("My name is",name.title())
print("My age is", age,"years old")
print("I am in grade", grade)
```

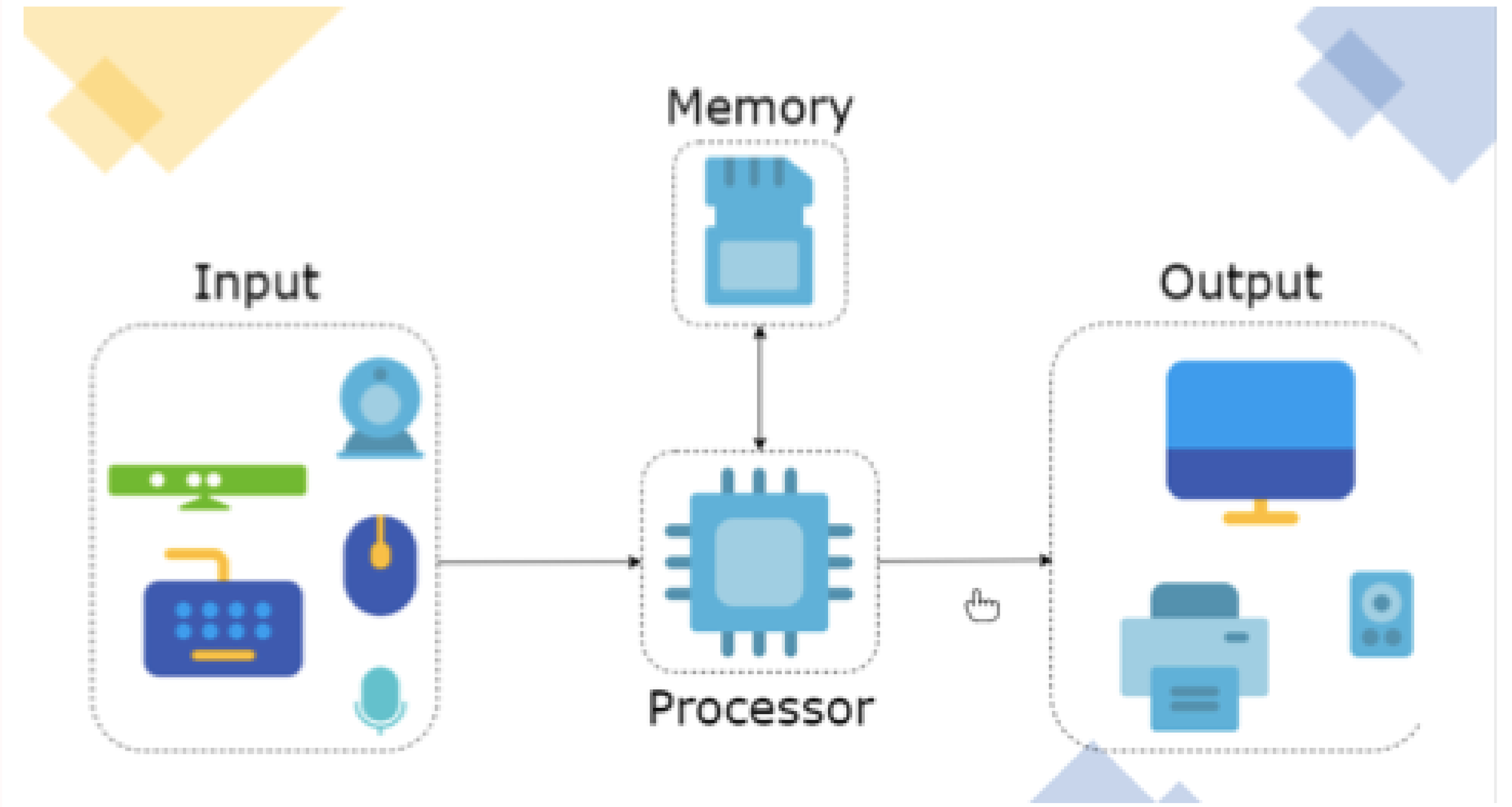
```
Enter full name: Krish H
Enter age: 15
Enter grade: 10
My name is Krish H
My age is 15 years old
I am in grade 10
```

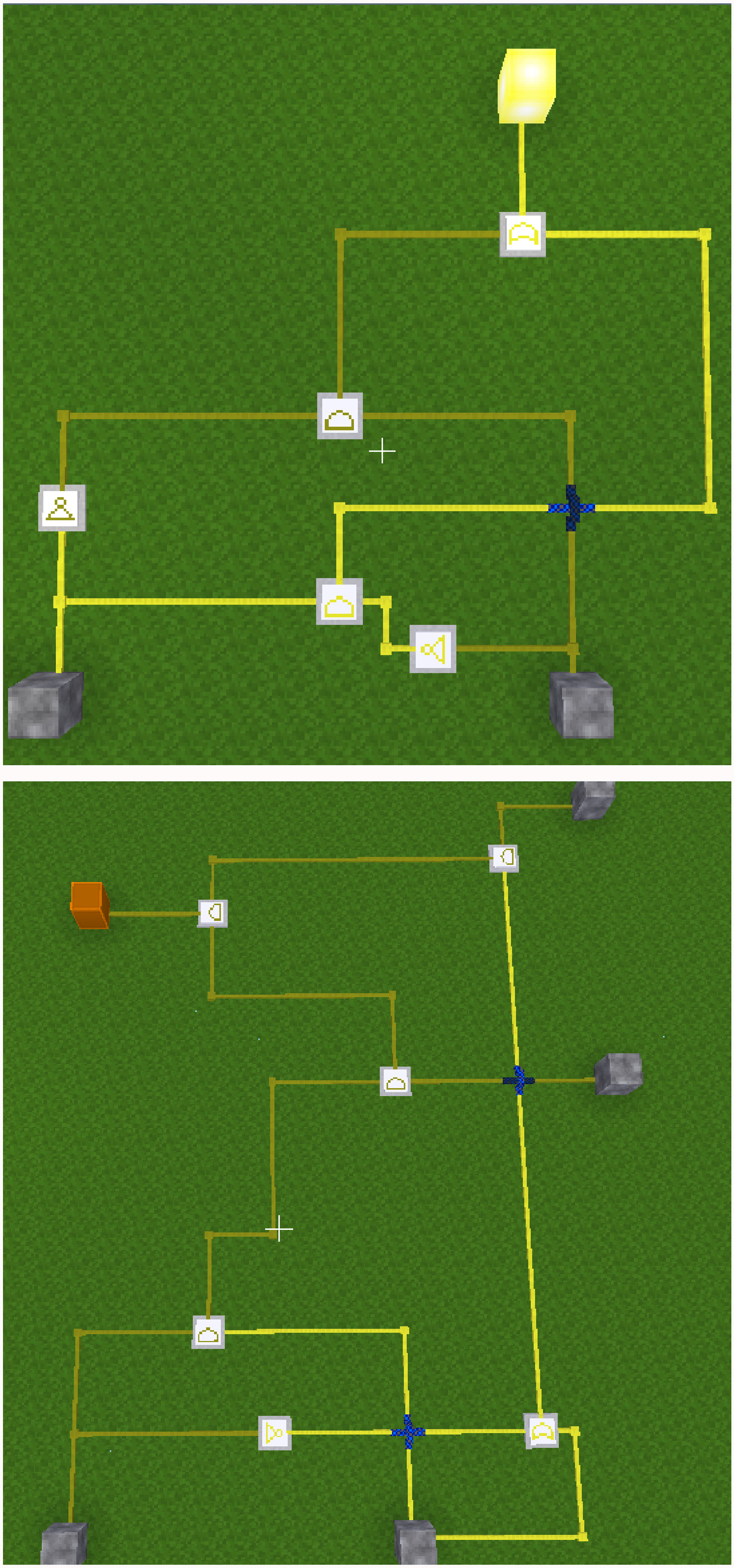
DAY 2

BUILDING A BASIC COMPUTER

THE GOAL WAS TO UNDERSTAND HOW A COMPUTER WORKS AND PERFORMS.

WE LEARNT ABOUT LOGIC GATES AND BOOLEAN, WHICH WERE THEN IMPLEMENTED IN MINETEST USING MESECONS MOD.


Memory
Input
Output
Processor

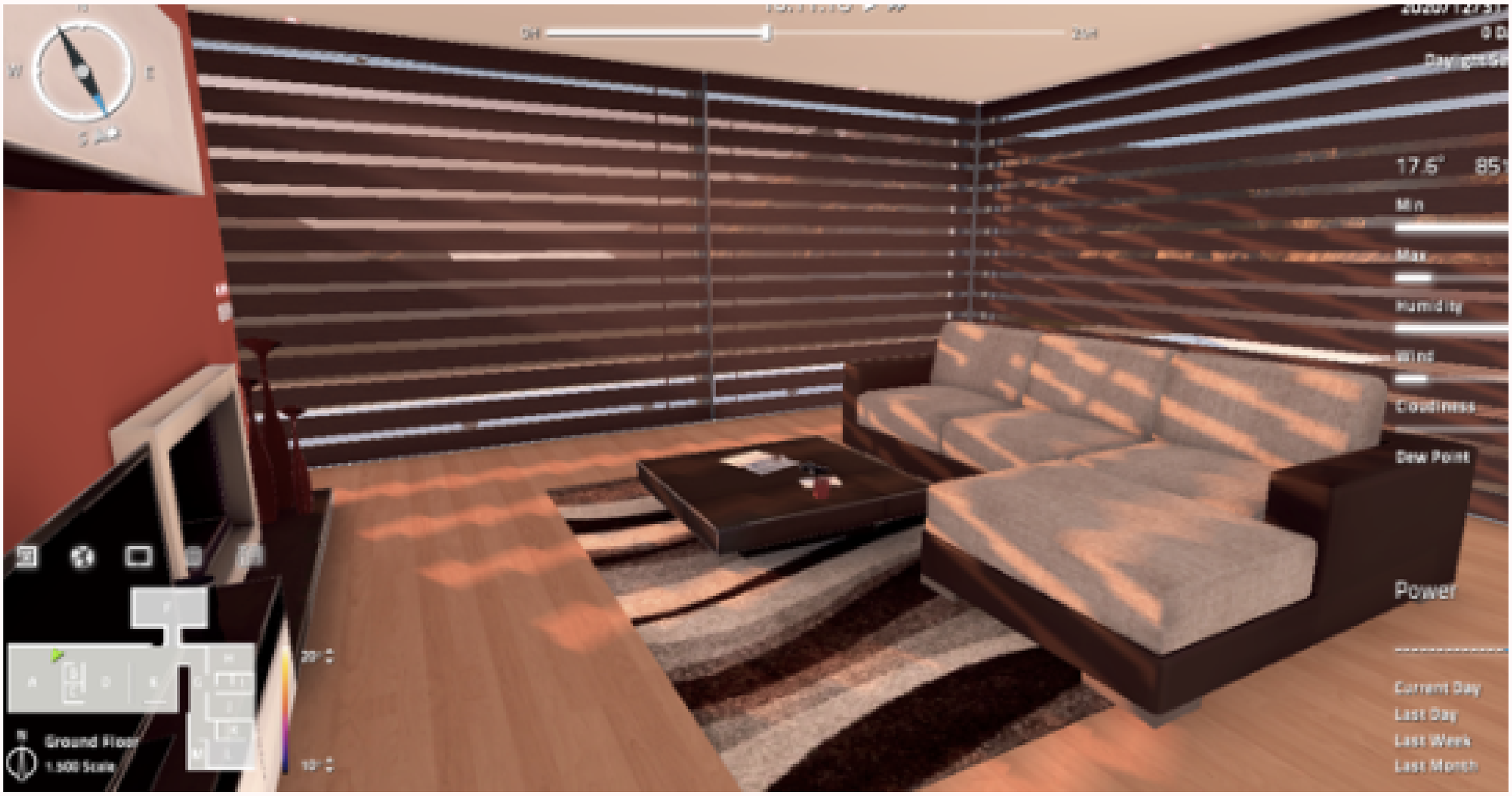


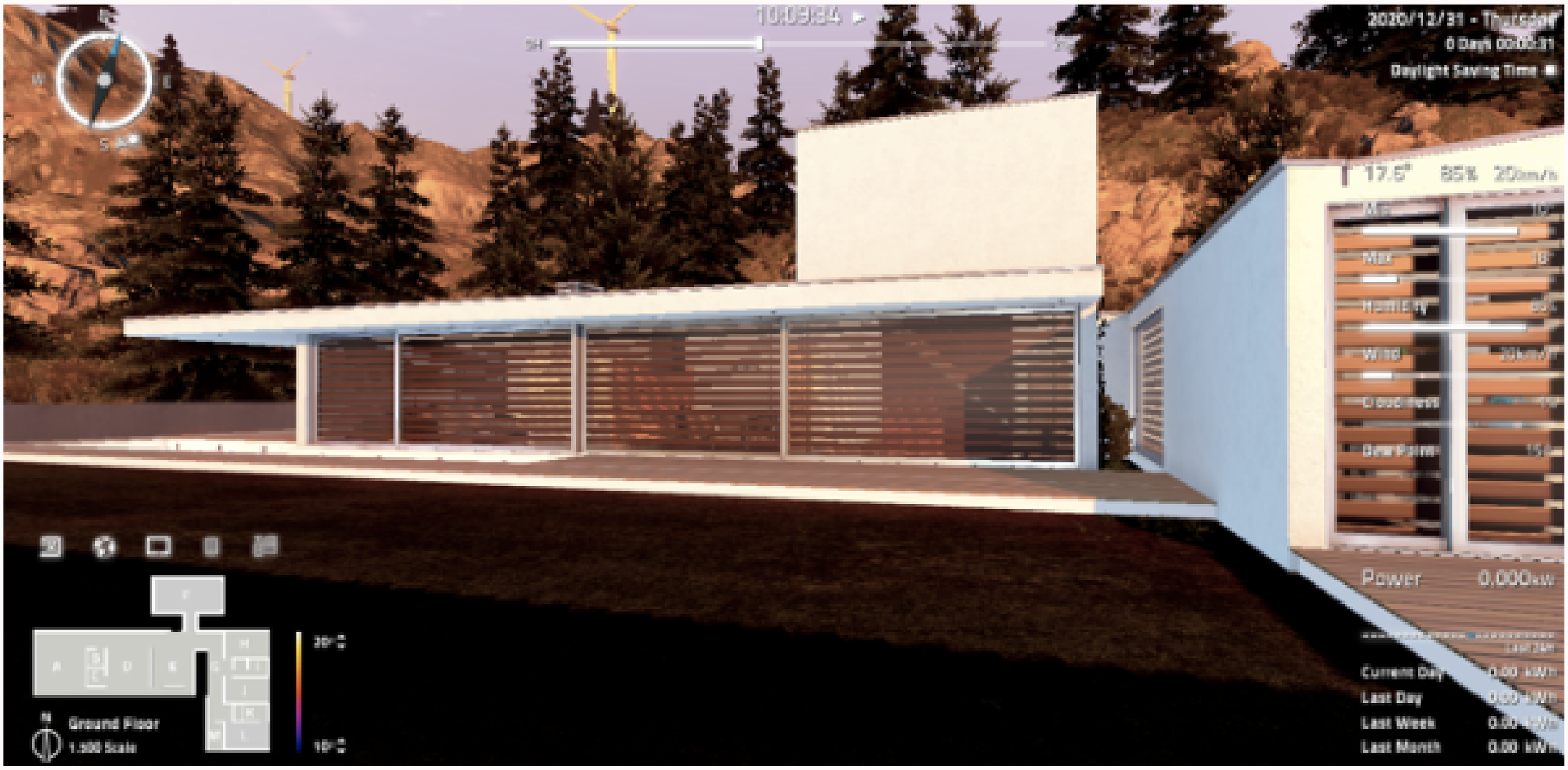
DAY 3

IOT AND SMART HOME

THE GOAL WAS TO UNDERSTAND WHAT A SMART HOME IS AND HOW IT WORKS.

WE USED HOME I/O TO INTERFACE SENSORS AND ACTUATORS USING SCRATCH, PYTHON.


Ground Floor
1:500 Scale
17.6°
Min
Max
Humidity
Wind
Cloudiness
Dew Point
Power
Current Day
Last Day
Last Week
Last Month


2020/12/31 - Thursday
0 Days 00:00:31
Daylight Saving Time
17.6°
85%
Min
Max
Humidity
Wind
Cloudiness
Dew Point
Power
0.000kW
Current Day
Last Day
Last Week
Last Month
Ground Floor
1:500 Scale

DAY 4

INTRODUCTION TO ML AND AI

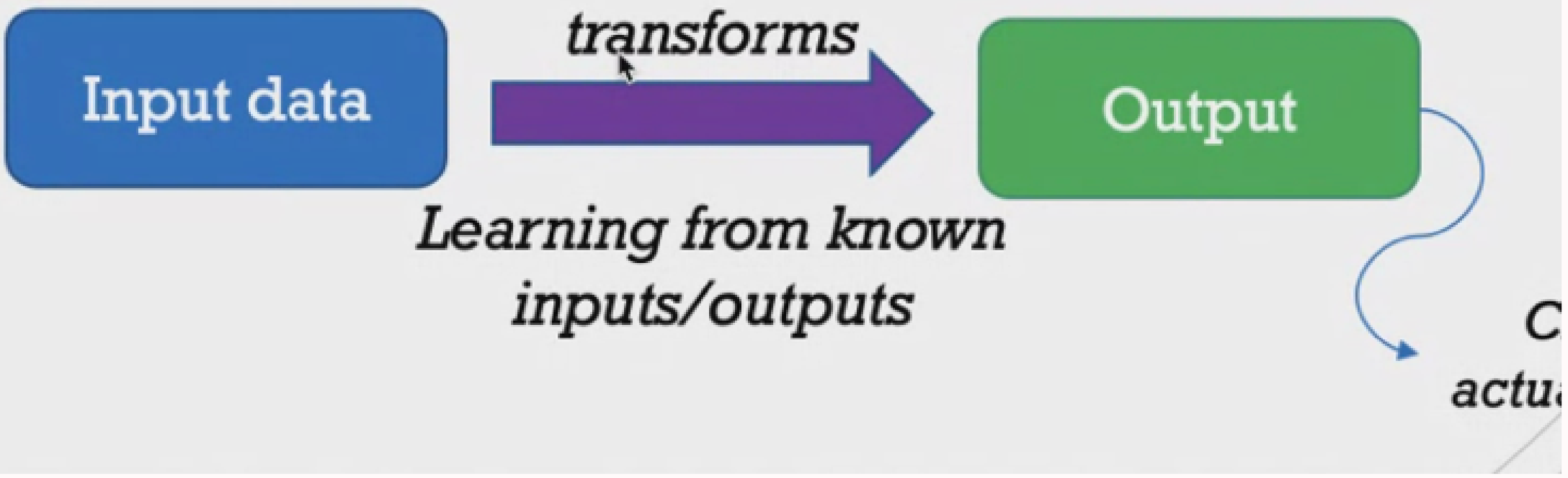
THE GOAL WAS TO UNDERSTAND MORE ABOUT AI AND ML. WE LEARNT ABOUT ITS USES IN DAILY LIFE.

WE PLAYED A GAME IN WHICH WE DRAW AND MAKE THE COMPUTER GUESS WHAT IT IS.

To do machine learning, we need three things:

1. **Input data** points (images, text, sounds,…)
2. **Examples** of the **expected outputs** (tags on images)
3. A way to measure whether the algorithm is doing a good job.

- How it learns is by adjusting the algorithm based on this **feedback**

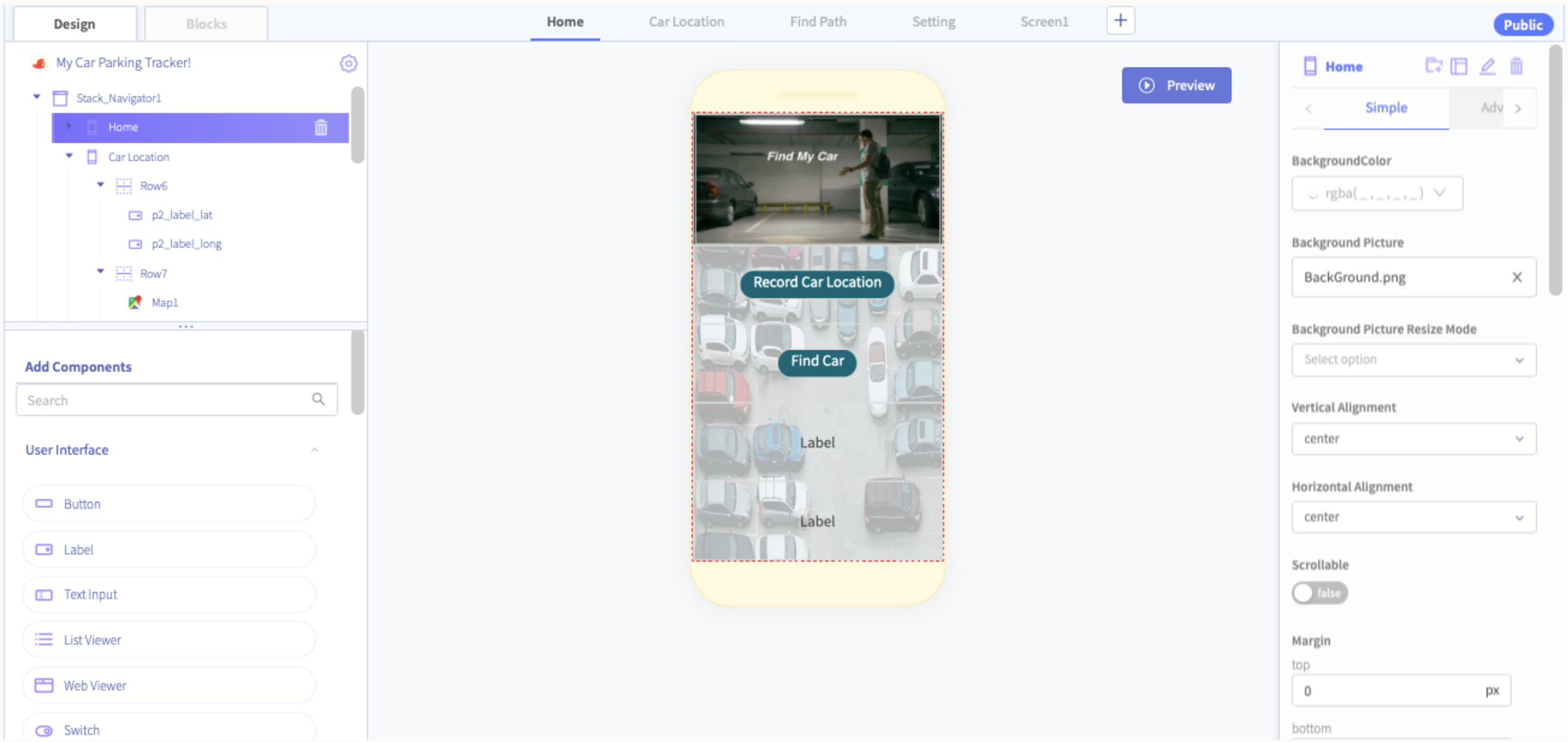


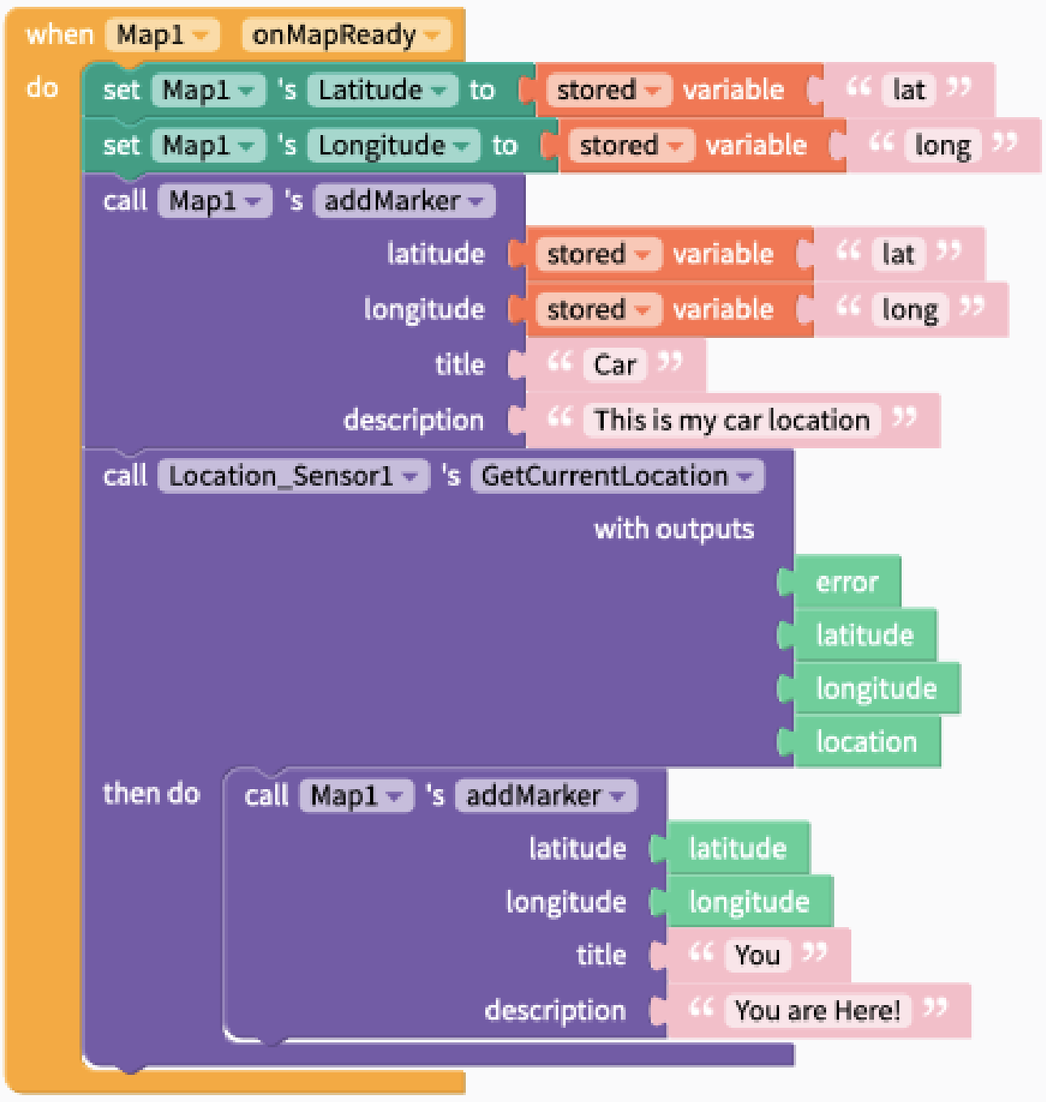
DAY 5

APP DEVELOPMENT

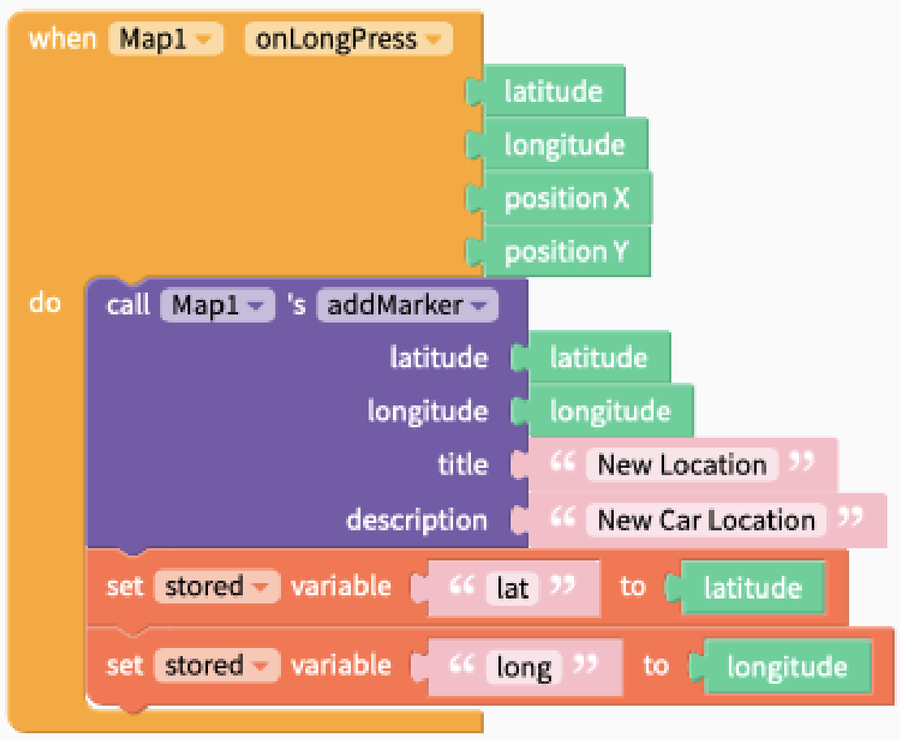
THE GOAL WAS TO UNDERSTAND AND LEARN ABOUT MOBILE APP DEVELOPMENT.

USING A WEBSITE NAMED THUNKABLE, WE MADE AN APP TO TRACK WHERE OUR CAR IS PARKED AND TO FIND THE PATH TO IT FROM YOUR CURRENT LOCATION.

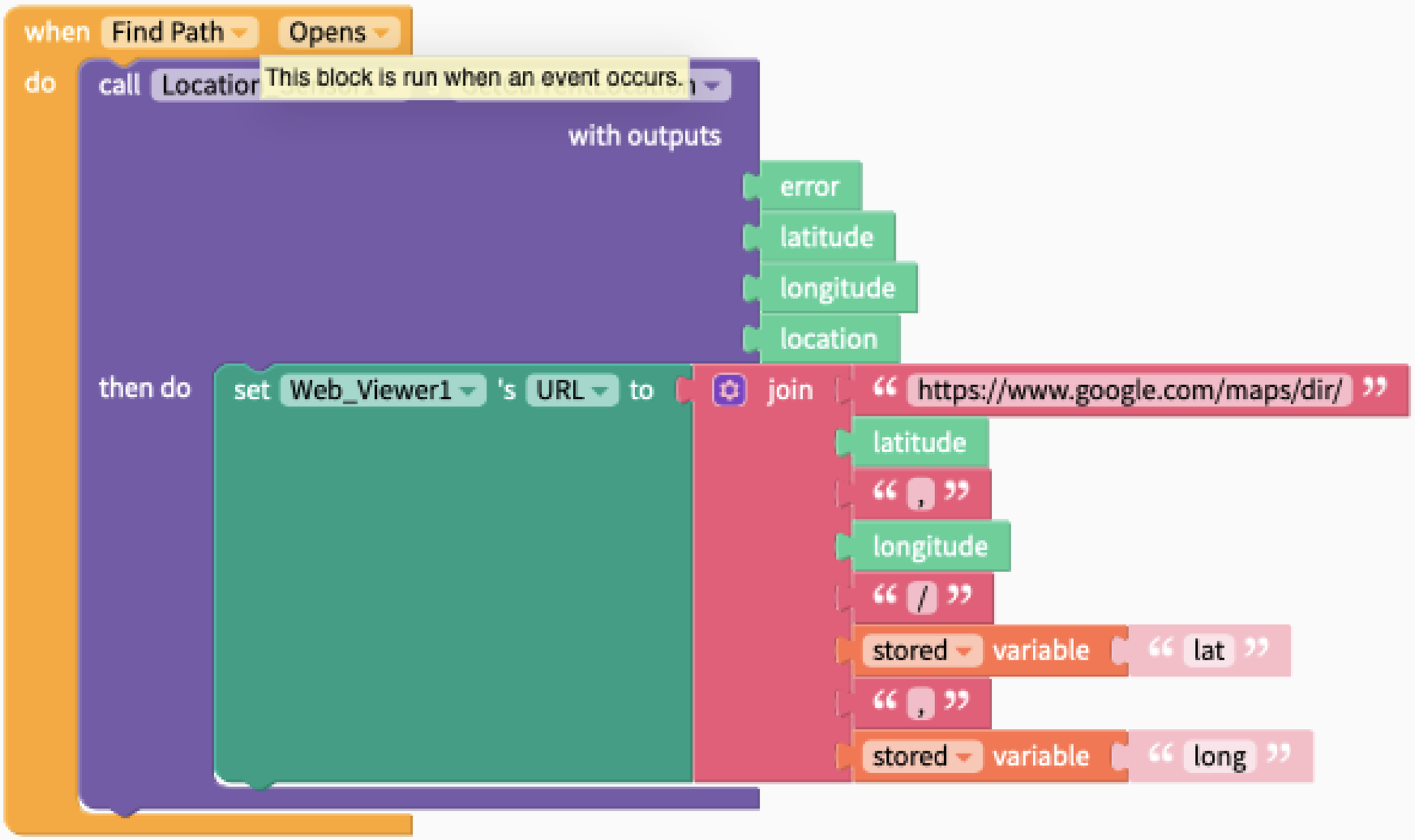

Design
Blocks
Home
Car Location
Find Path
Setting
Screen1
Public
My Car Parking Tracker!
Stack_Navigator1
Home
Car Location
Row6
p2_label_lat
p2_label_long
Row7
Map1
Add Components
Search
User Interface
Button
Label
Text Input
List Viewer
Web Viewer
Switch
Preview
Find My Car
Record Car Location
Find Car
Label
Label
Home
Simple
Adv
BackgroundColor
rgba(_,_,_,_)
Background Picture
BackGround.png
Background Picture Resize Mode
Select option
Vertical Alignment
center
Horizontal Alignment
center
Scrollable
false
Margin
top
0
px
bottom

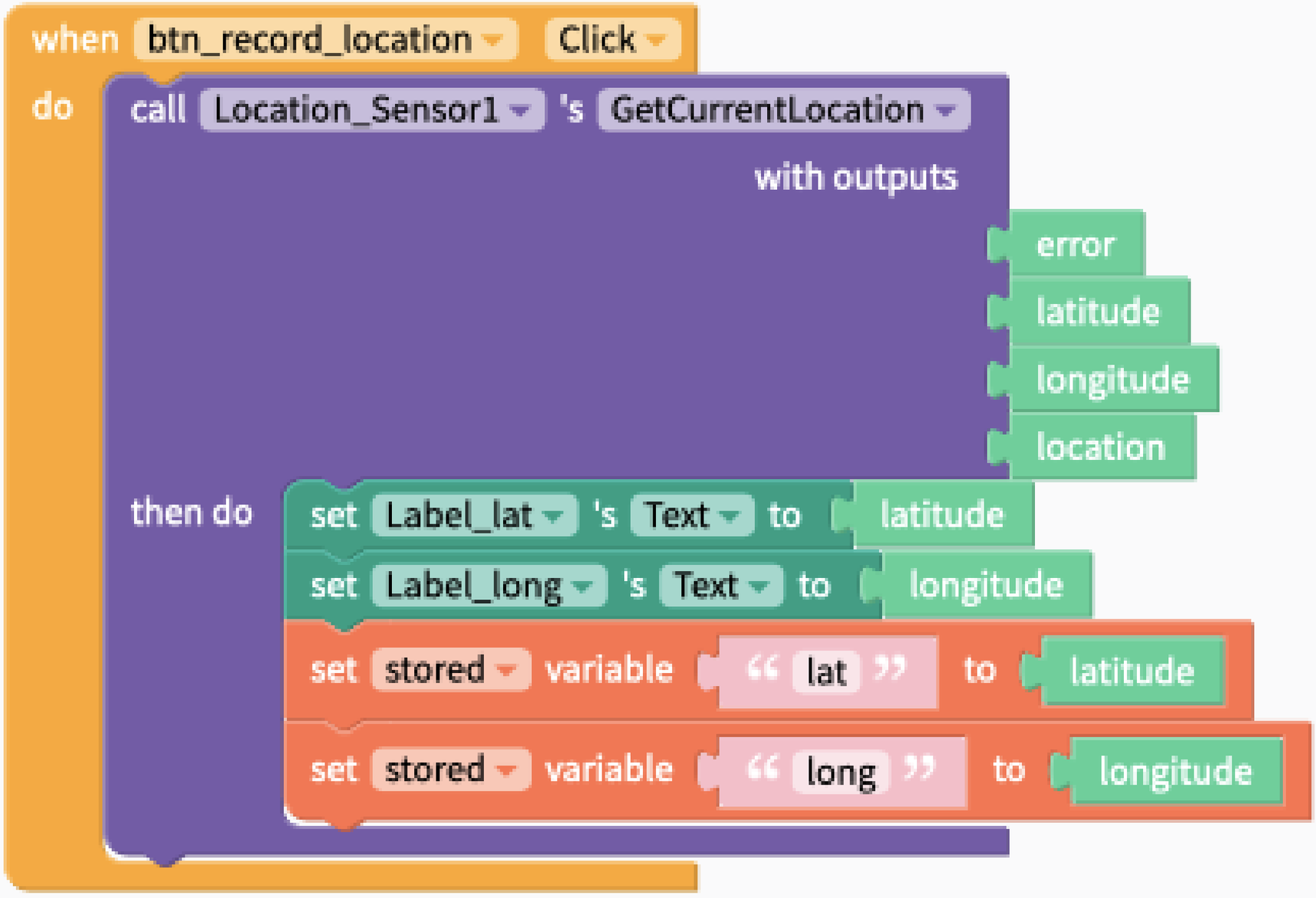

when Map1 onMapReady
do set Map1 's Latitude to stored variable "lat"
set Map1 's Longitude to stored variable "long"
call Map1 's addMarker
latitude stored variable "lat"
longitude stored variable "long"
title "Car"
description "This is my car location"
call Location_Sensor1 's GetCurrentLocation
with outputs
error
latitude
longitude
location
then do call Map1 's addMarker
latitude latitude
longitude longitude
title "You"
description "You are Here!"

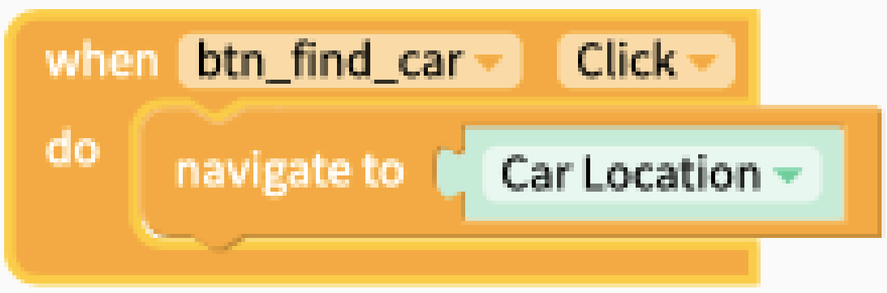
when Car Location Opens
do set p2_label_lat 's Text to stored variable "lat"
set p2_label_long 's Text to stored variable "long"


when Map1 onLongPress
latitude
longitude
position X
position Y
do call Map1 's addMarker
latitude latitude
longitude longitude
title "New Location"
description "New Car Location"
set stored variable "lat" to latitude
set stored variable "long" to longitude

when btn_Find Path Click
do navigate to Find Path


when Find Path Opens
do
call Locatior
This block is run when an event occurs.
with outputs
error
latitude
longitude
location
then do
set Web_Viewer1 's URL to
join
“ https://www.google.com/maps/dir/ ”
latitude
“ , ”
longitude
“ / ”
stored variable “ lat ”
“ , ”
stored variable “ long ”


when btn_record_location Click
do
call Location_Sensor1 's GetCurrentLocation
with outputs
error
latitude
longitude
location
then do
set Label_lat 's Text to latitude
set Label_long 's Text to longitude
set stored variable “ lat ” to latitude
set stored variable “ long ” to longitude


when btn_find_car Click
do
navigate to Car Location

DAY 6

BUILDING A COMPUTER NETWORK

THE GOAL WAS TO UNDERSTAND

NETWORKS AND HOW THEY WORK.

TOPICS COVERED: BINARY NUMBERS,

OCTAL NUMBERS AND HEXA NUMBERS, IP

ADDRESSES.

WE LEANT THIS THROUGH AN APP “CISCO

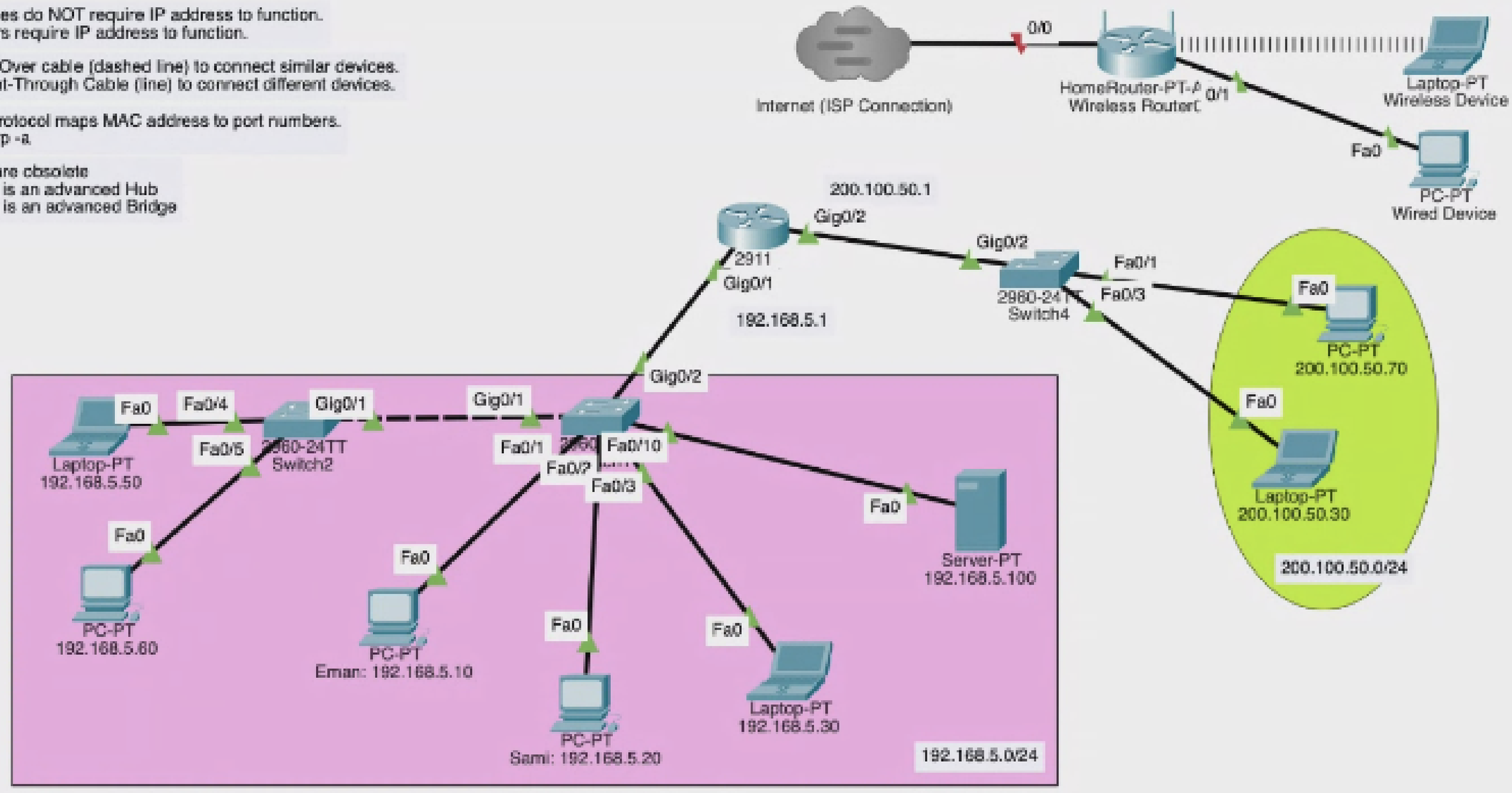
PACKET TRACER”

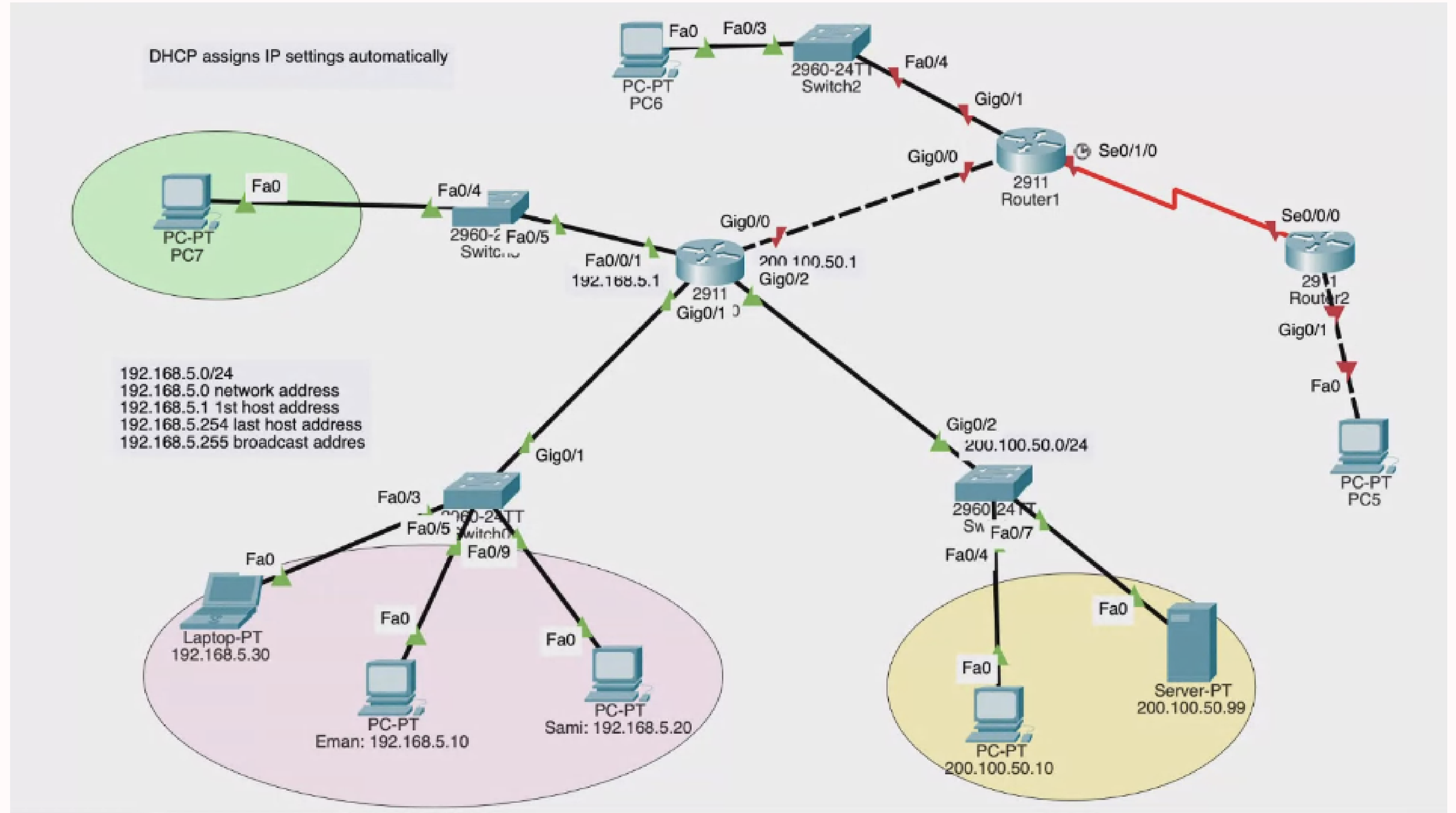
Switches do NOT require IP address to function.
Routers require IP address to function.

Cross-Over cable (dashed line) to connect similar devices.
Straight-Through Cable (line) to connect different devices.

ARP protocol maps MAC address to port numbers.
C:\> arp -a

Hubs are obsolete
Bridge is an advanced Hub
Switch is an advanced Bridge





THE END