Masterclass On python

Quantum.ai

Instructor

Harun-Ur-Rashid

Founder & CEO, Quantum.ai
Trainee Machine Learning Engineer, Pioneer Alpha

Masterclass Timeline

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- History of Python
- Why use Python?
- Installing Python

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- Try-Except

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Introduction

What is Python?

History of Python

Invention

Designer: Guido Van Rossum
Developer: Python Software Foundation
Year: 1990
Motivation: Monty Python’s Flying Circus(BBC TV Show)

Why Use Python?

<u>Advantages :</u>

- Easy to learn
- User-friendly data structures
- Open source and community development
- Dynamically typed language(No need to mention data type based on value assigned, it takes data type)
- Object-oriented language
- Extensive support libraries(NumPy for numerical calculations, Pandas for data analytics etc)

<u>Applications :</u>

- GUI based desktop applications(Games, Scientific Applications)
- Web frameworks and applications
- Enterprise and Business applications
- Operating Systems
- Language Development

Python Installation

- Go to -> python.org
- Download Python latest version
- Download Anaconda
- Start coding

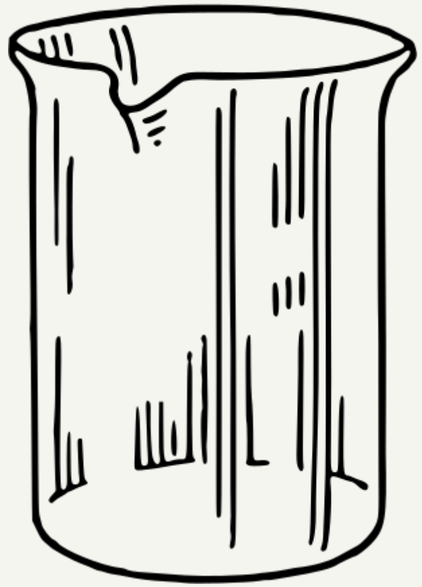
Basic Python

Hello Python

```
print('hello world!')
```

Variables

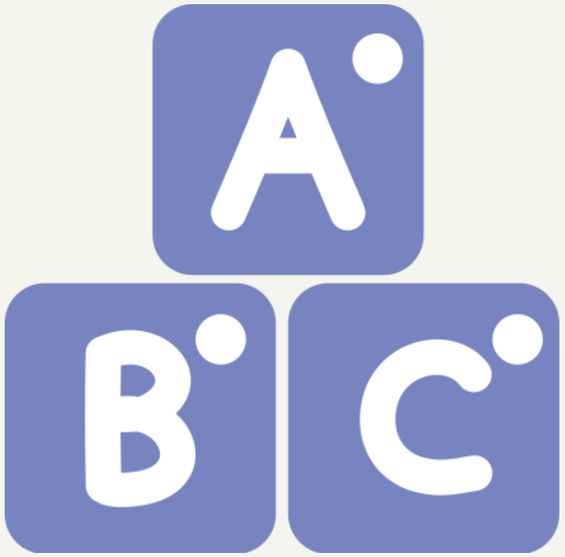
Variables is a characteristic, number, or quantity that increases or decreases over time, or takes different values in different situations.



Data Types

Data types are the classification or categorization of data items. Data types represent a kind of value which determines what operations can be performed on that data. Numeric, non-numeric and Boolean (true/false) data are the most used data types.

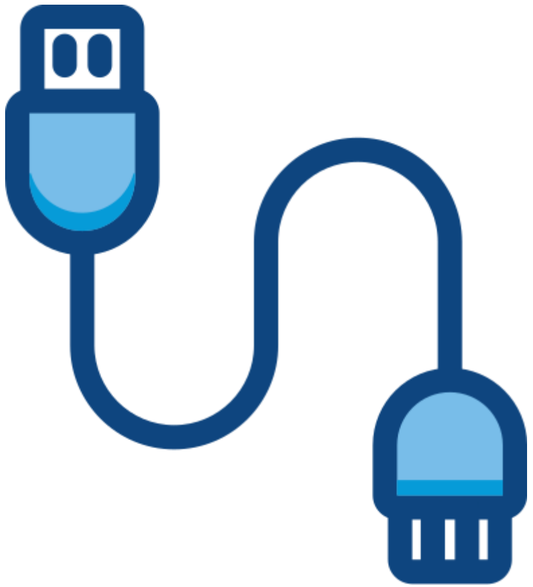
String & Numbers



String: A string object is one of the sequence data types in Python. It is an immutable sequence of Unicode characters. Strings are objects of Python's built-in class 'str'.

Number: Python includes three numeric types to represent numbers: integer, float, and complex.

Input & Output



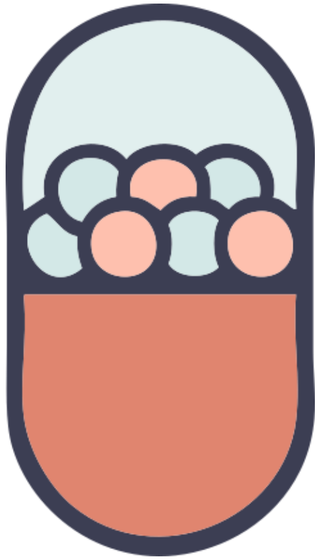
Input: An input function which lets you ask a user for some text or number input.
Output: print() function lets you show you the result/output in the computer screen.

Data Structure & Function

List & Tuples

List: List is a collection which is ordered and changeable. Allows duplicate members.

Tuples: A tuple is a collection which is ordered and **unchangeable**. In Python tuples are written with round brackets.



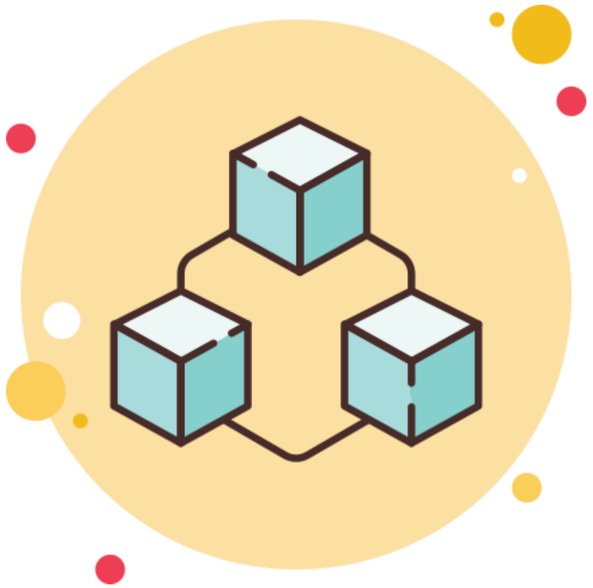
Set & Dictionary

Set: Set is a collection which is unordered and unindexed. No duplicate members.
Dictionary: Dictionary is a collection which is unordered, changeable and indexed. No duplicate members.

Functions & Modules

Functions: A function is a block of code which only runs when it is called. You can pass data, known as parameters, into a function. A function can return data as a result.

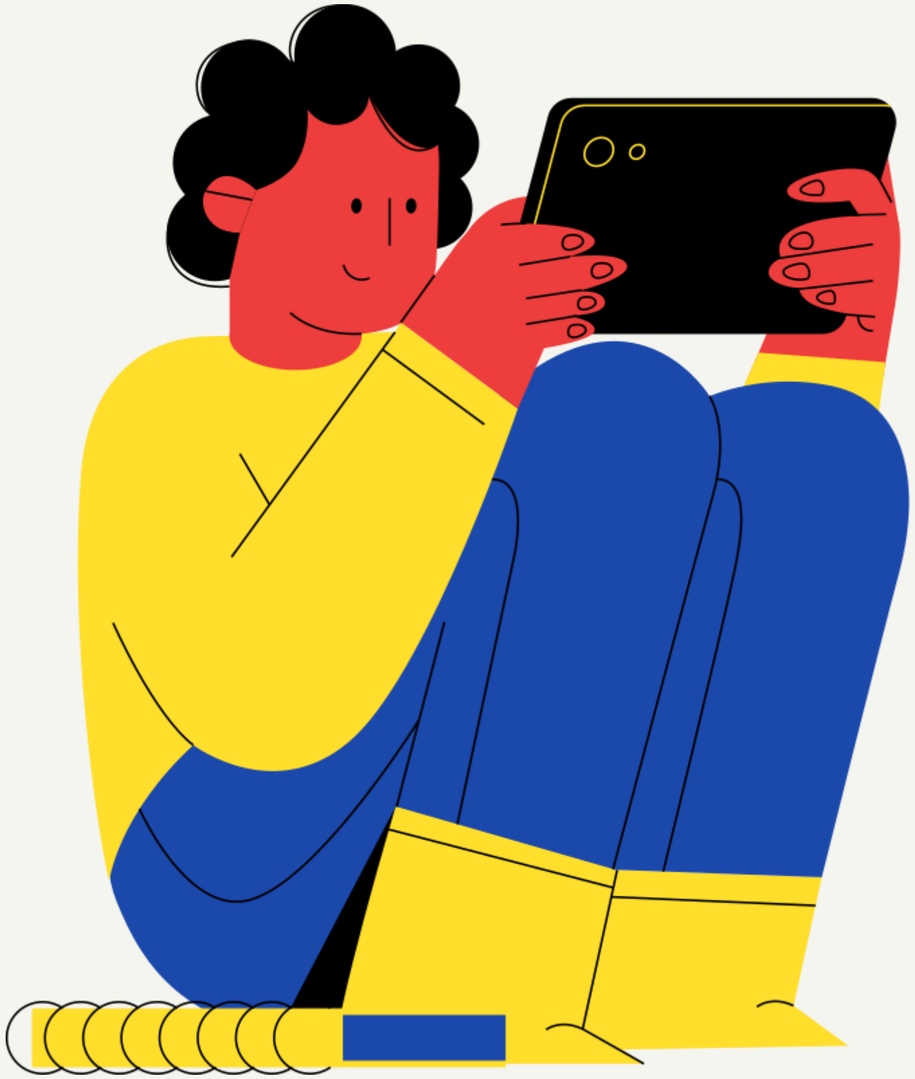
Modules: Consider a module to be the same as a code library. A file containing a set of functions you want to include in your application..



Try-Except

Try: The try block lets you test a block of code for errors.
Except: The except block lets you handle the error.

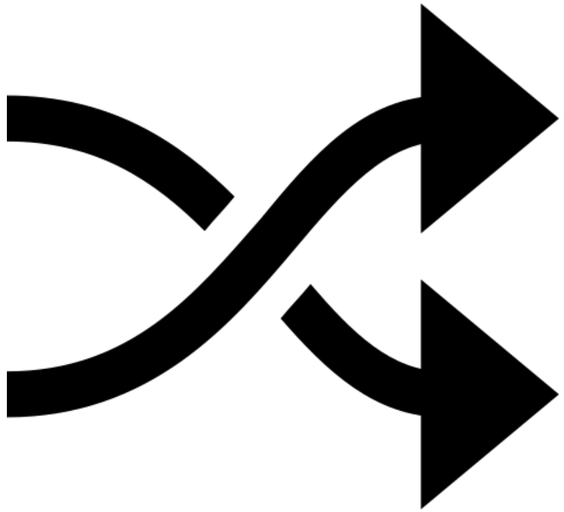
Control Structure



if-else

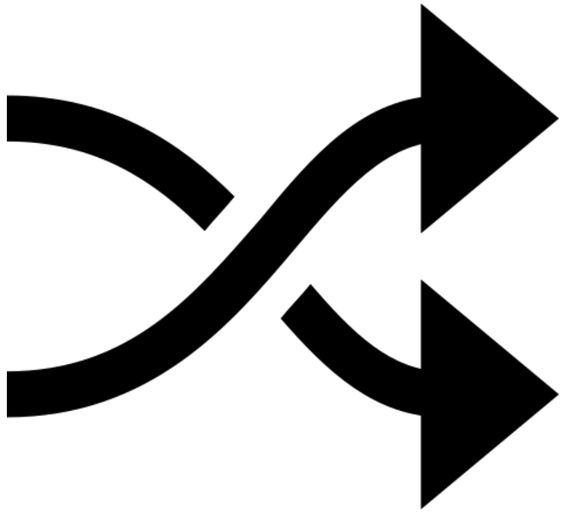
<u>If-else:</u> Decision making is required when we want to execute a code only if a certain condition is satisfied. The **if…elif…else** statement is used in Python for decision making.

For loop



For loop: The **for loop** in Python is used to iterate over a sequence (list, tuple, string) or other iterable objects. Iterating over a sequence is called traversal.

While loop



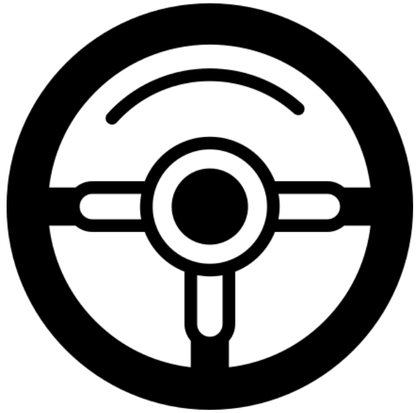
<u>While loop:</u> The **while loop** in Python is used to iterate over a block of code as long as the test expression (condition) is true. We generally use this loop when we don't know the number of times to iterate beforehand.

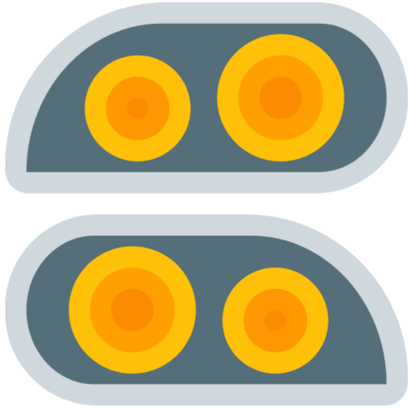
Advanced Python

Basic OOP

Class: A class is a blueprint for the object. We can think of class as a sketch of a car with labels. It contains all the details about the name, colors, attributes etc. Based on these descriptions, we can study about the car.

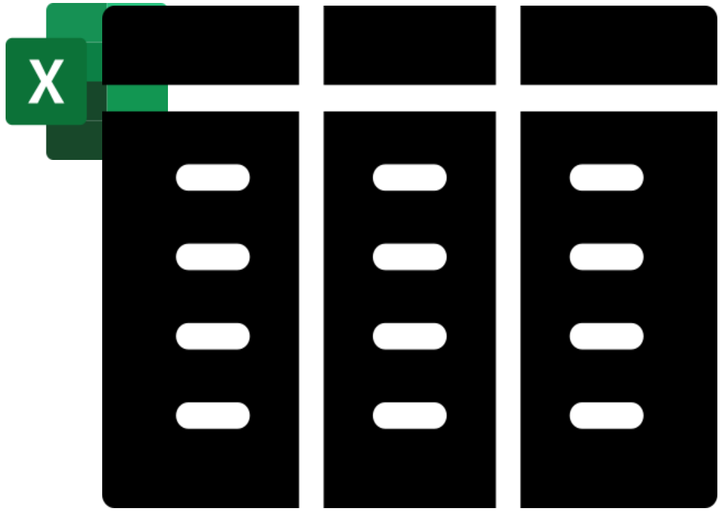
Object: An object (instance) is an instantiation of a class. When class is defined, only the description for the object is defined. The car is object.





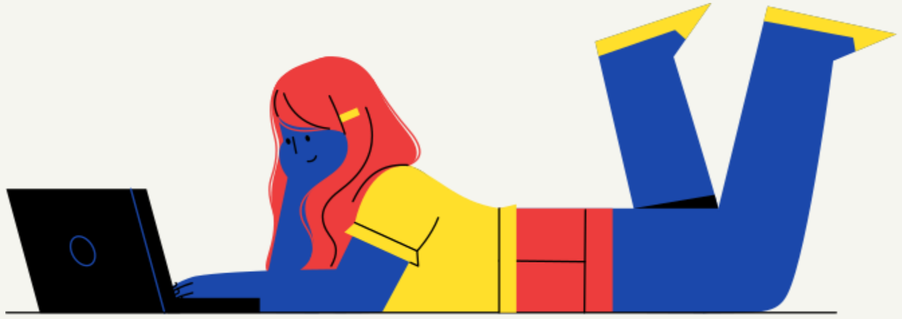
Pandas

Pandas: Pandas is a software library written for the Python programming language for data manipulation and analysis. In particular, it offers data structures and operations for manipulating numerical tables and time series.



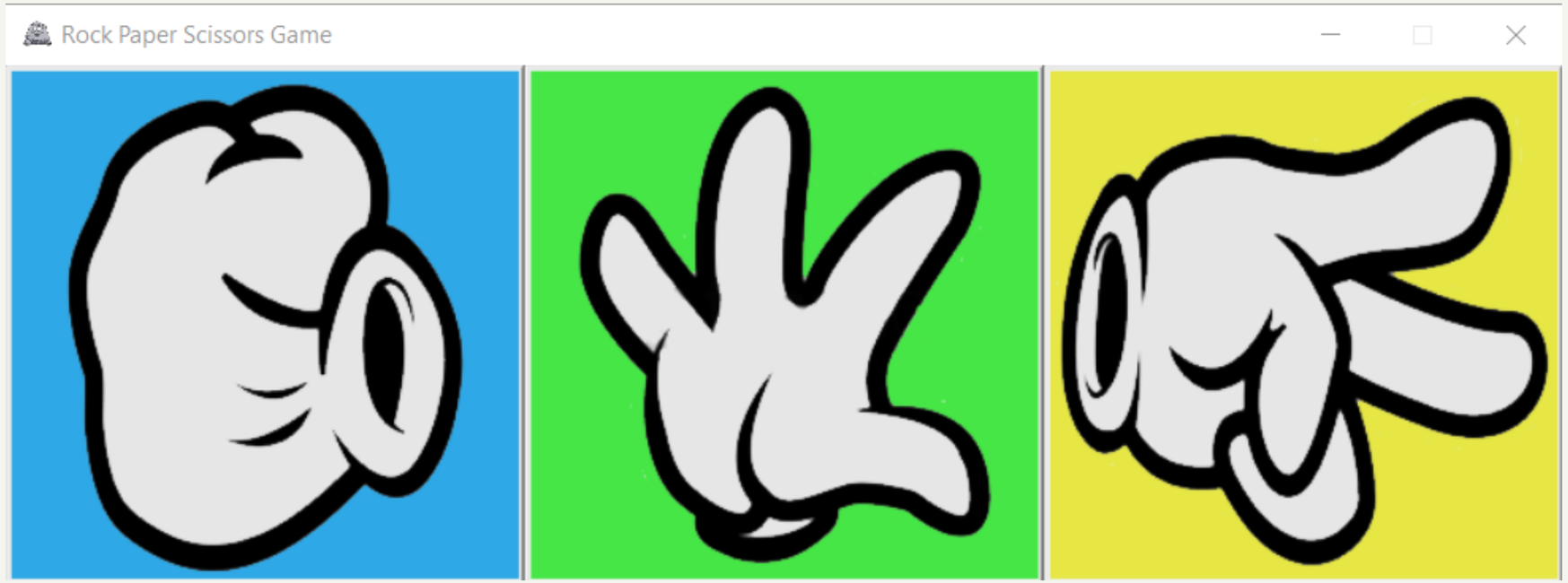
NumPy

Numpy: NumPy is a library for the Python programming language, adding support for large, multi-dimensional arrays and matrices, along with a large collection of high-level mathematical functions to operate on these arrays.



Projects

Rock Paper Scissors

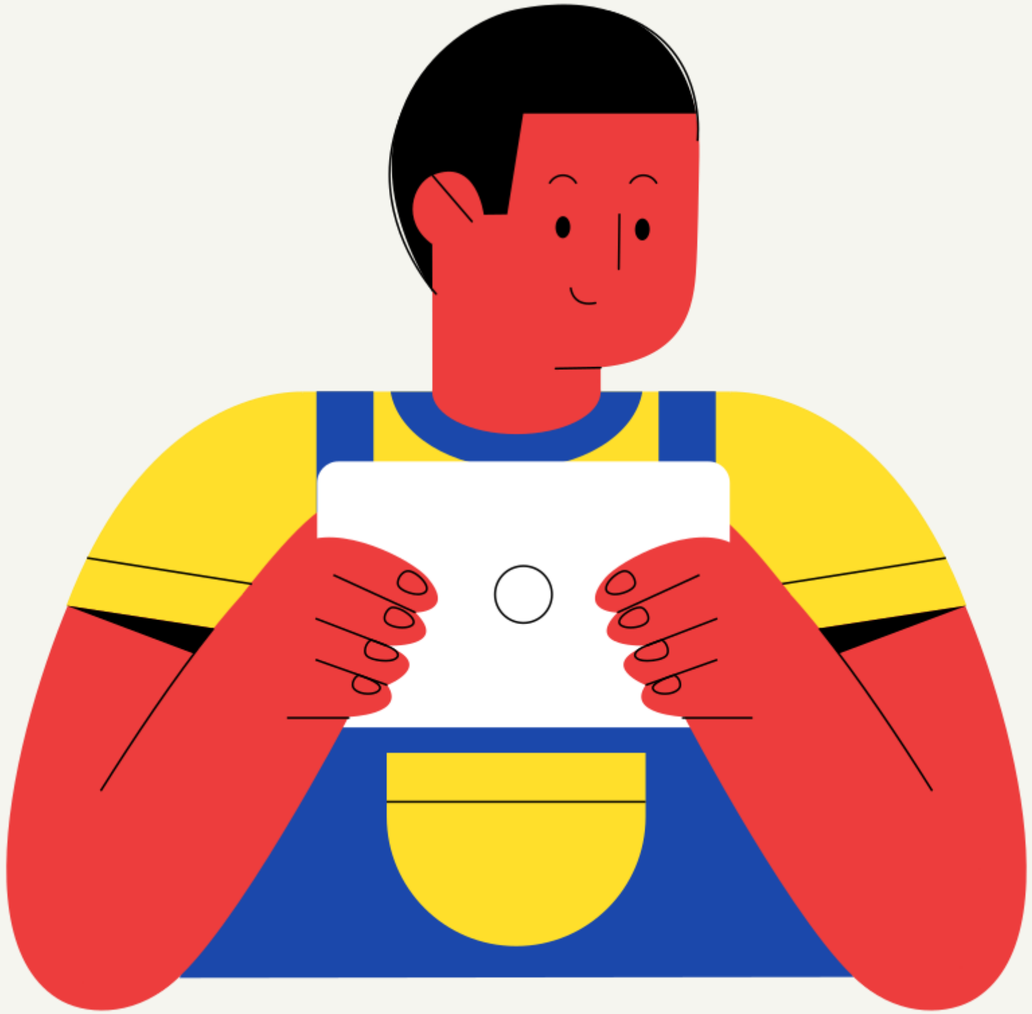


Results

What we learned today?

- Installing Python
- Basic Python
- Data Structure & Function
- Control Structure
- Basic OOP
- Pandas
- NumPy

Conclusion



Do Projects On Your Own

Conditional statement, Loop, Arithmetic operations, Function

Project-01 (**Basic**)

Calculator or Password Generator

Function, Conditional Statement, Loop, Random Function

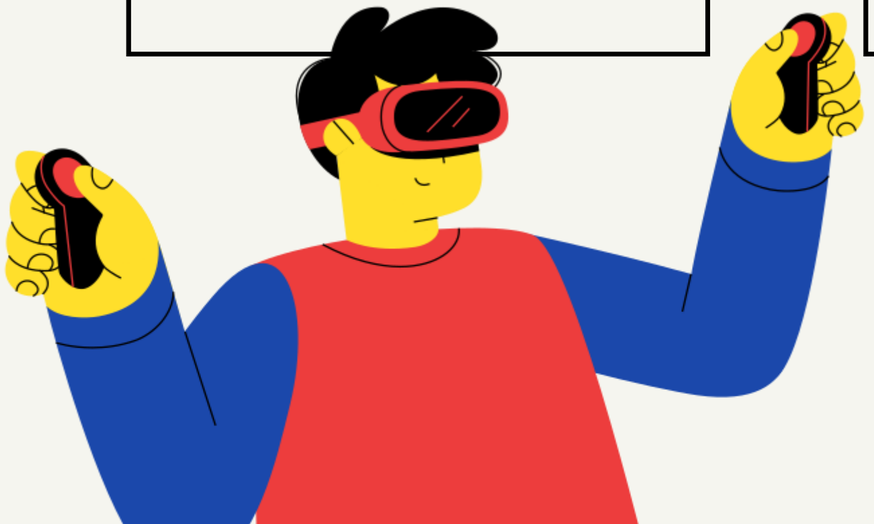
Project-02 (**Intermediate**)

Hangman

Function, Conditions Statement, Loop, Class

Project-03 (**Advance**)

Tic Tac Toe



Our Recent Course on Machine Learning

Congratulations!

Thanks for joining masterclass

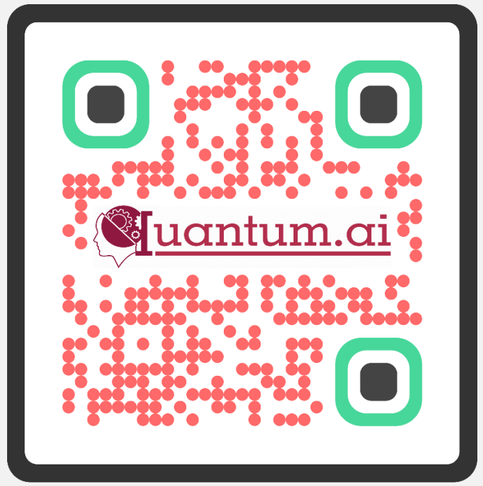
Address

Narayanganj,Dhaka

Phone Number

01883020356

engharunurrashid97@gmail.com
quantumdotai@gmail.com



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