Introduction to Programming and Python

by Adamya Neupane

What is Programming?

Programming is the process of creating instructions for computers to execute. Python is a popular programming language known for its readability and versatility.

What is the need for Programming?

1

Problem Solving

Programming helps us solve complex problems by breaking them down into smaller steps that computers can handle.

2

Automation

Programming allows us to automate repetitive tasks, freeing up time for more creative work.

3

Innovation

Programming fuels innovation by creating new technologies and solutions that impact our lives.

Basic Concepts of Programming

Programming involves understanding basic concepts that form the foundation of coding.

1

Algorithms

Algorithms are step-by-step instructions for solving a problem. They define the logic and flow of a program.

2

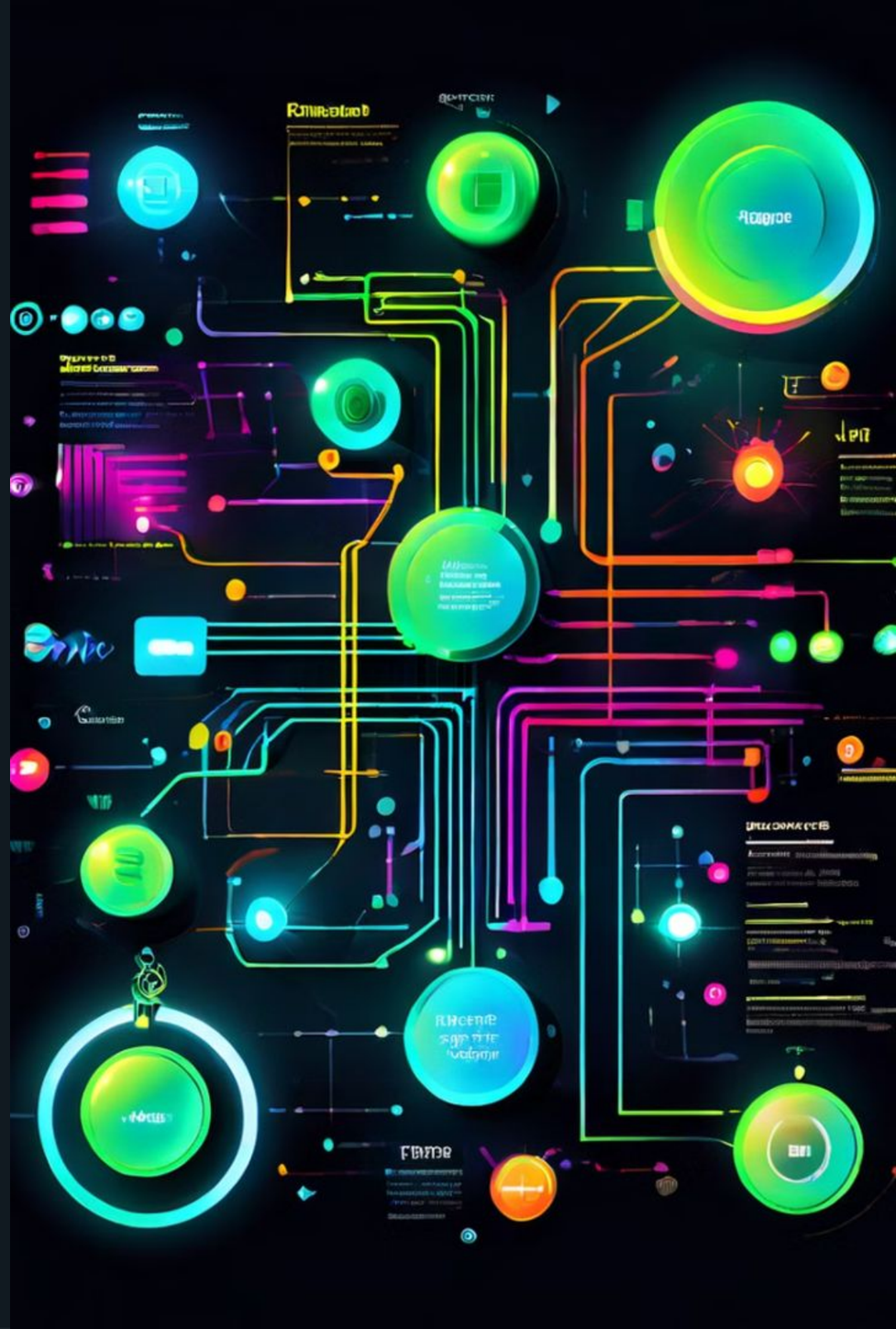
Data Structures

Data structures are ways of organizing and storing data in a program. They help manage data efficiently.

3

Control Flow

Control flow dictates the order in which instructions are executed in a program. It allows for decisions and repetition.



Introduction to Python

Python is a high-level, interpreted programming language known for its simplicity and readability.

Easy to Learn

Python's syntax is designed to be intuitive, making it easier for beginners to grasp.

Versatile

Python is used in a wide range of applications, including web development, data science, and automation.

Large Community

Python has a vast and active community, providing support, resources, and libraries.

Python Uses and Applications

Python's versatility makes it suitable for various applications.

Web Development

Python is used to build web applications, frameworks, and backend systems.

- Django
- Flask

Data Science

Python is used for data analysis, machine learning, and statistical modeling.

- Pandas
- Scikit-learn

Automation

Python can automate tasks, such as scripting, system administration, and testing.

- Selenium
- PyAutoGUI

Web

Pretty-print ☑


```
[
  {
    "id": 33,
    "approved_status": true,
    "sold_status": false,
    "featured_status": false,
    "staff_notes": "Jagga bechne \r\n Janyandra Koirala \r\n 9851078487",
    "property_id": "KAT-KIR-4-L-1962",
    "propertyAgentContact": 9840042012,
    "owner_name": "jaggu dahal",
    "owner_old_address_district": "Kathmandu",
    "owner_number": 9851121902,
    "title": "3/4 aanaa land sell pre aana 28lakha",
    "propertyCitizenshipNumber": "11",
    "district": "Kathmandu",
    "municipality": "Kirtipur",
    "ward": "4",
    "tole": "Salyanthan",
    "property_link": "https://maps.app.goo.gl/FfCGQkgT5jzpjL6x7?g_st=ic",
    "nearestLandmark": "https://maps.app.goo.gl/FfCGQkgT5jzpjL6x7?g_st=ic",
    "propertyDirection": "east",
    "roadType": "concrete",
    "propertyLength": "36",
    "propertyWidth": "31",
    "propertyArea": "1116",
    "propertyDescription": "",
    "propertyPrice": "2800000",
    "purchaseType": "buy",
    "property_image_1": "https://api.cmarga.com/media/property_images/image_cqGdlcR.jpg",
    "property_image_2": "https://api.cmarga.com/media/property_images/image_qPyuEMk.jpg",
    "property_image_3": "https://api.cmarga.com/media/property_images/0AF42947-DC95-4AA3-BA71-CDB37BDF0417.jpeg",
    "property_image_4": "https://api.cmarga.com/media/property_images/E2ADB966-133E-4EBB-94EC-08B46034F896.jpeg",
    "property_image_5": null,
    "property_image_6": null,
    "property_image_7": null,
    "property_image_8": null,
    "property_image_9": null,
    "property_image_10": null,
    "property_video": null,
    "visitTimeStart": "11:43:00",
    "visitTimeEnd": "18:43:00",
    "medical_shop_distance": "0",
    "nearby_grocery_shop_distance": null,
    "public_vehicle_spot_distance": null,
    "bargain": true,
    "road_size": "13",
    "measurement_unit": "Feet",
    "land_slope": null,
    "date_added": "2024-05-18T15:30:19.590893+05:30",
    "date_modified": "2024-05-18T16:33:55.093920+05:30",
    "propertyType": "Land",
    "propertyAgent": 4
  },
  {
    "id": 32,
    "approved_status": true,
    "sold_status": false,
    "featured_status": false,
    "staff_notes": "",
    "property_id": "KAT-INA-4-L-1308",
```

Data Science

Automation

अन्तिम श्रम स्वीकृतिको खोजि (Search By):

112453 Search

Search For Recruiting Agencies

Details

Recruiting Agency	ISHAN OVERSEAS PVT. LTD.
Lt #	112453
Country	Qatar
Company	AL MOHTARIF CLEANING COMPANY W.L.L.
Approved Date	2014/11/20

		Quality								
Sn	Skill	men	female	Salary	Fooding	Accommodation	Duration	Service Charge	Total Fee	
1	General Cleaner	27	0	900	Yes	Yes	2	10000	5000	15000

Setting up the Python Environment

To start coding in Python, you need to install the Python interpreter and an IDE.

1

Download Python

Visit the official Python website and download the installer for your operating system.

2

Install Python

Run the installer and follow the on-screen instructions to install Python on your computer.

3

Choose an IDE

Select a code editor or integrated development environment (IDE) that suits your needs, such as VS Code or PyCharm.

4

Setup Environment

Setup an environment for coding in python, this will be beneficial in the long run for preventing version conflicts.

Writing Your First Python Program

Once your environment is set up, you can start writing Python programs.

1	Open your chosen IDE.
2	Create a new Python file (e.g., hello.py).
3	Type the following code:

```
print("Hello, World!")
```

Python Syntax and Printing to the Console

Python syntax is straightforward and designed for readability.

Keywords

Reserved words that have specific meanings in Python, such as "print" and "if".

Variables

Containers for storing data, assigned using the equals sign (e.g., "name = "John"").

Comments

Notes for programmers, ignored by the Python interpreter, using the hash symbol (#).

Console Output

The "print" function displays text or values on the console (terminal).

The Power of the Console

For developers, the console is an indispensable tool. It provides direct access to the inner workings of your code, allowing you to debug, test, and monitor your applications with precision.

Whether you're troubleshooting issues, executing commands, or simply exploring the capabilities of your programming language, the console is a window into the heart of your development process.

Console vs. GUI: Comparing Development Approaches

Console

The console is a powerful, text-based interface that provides direct access to the inner workings of your code. It's an indispensable tool for developers, allowing for precise debugging, testing, and exploration of your programs.

GUI

Graphical user interfaces (GUIs) offer a more visually-intuitive way to interact with your applications. GUIs can make complex software more accessible to end-users, with intuitive menus, buttons, and visual elements.

TASK:

print("Hello, World!")

The classic "Hello, World!" program is the simplest way to introduce programming in any language. This code, when executed, will output the message "Hello, World!" to the console or terminal window.