

# Introduction

# Overview

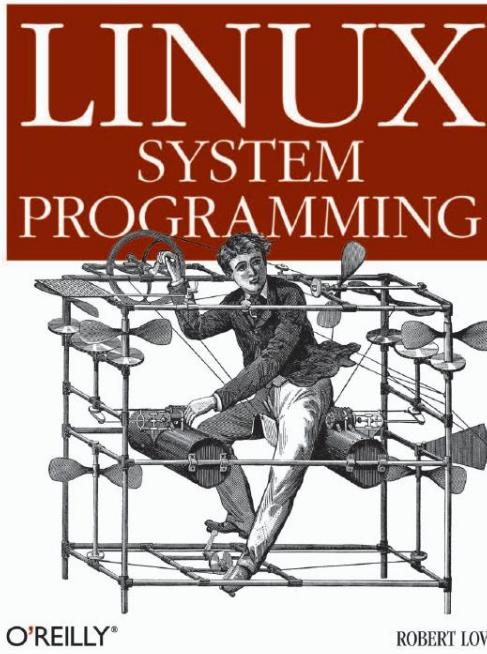
- Системне програмування. Спеціальність 123 - КІ (Луцький національний технічний університет)  
[https://drive.google.com/file/d/1NgvgUhJfyOwQI23iP34xnRgJuM\\_6H0PK/view?usp=drive\\_link](https://drive.google.com/file/d/1NgvgUhJfyOwQI23iP34xnRgJuM_6H0PK/view?usp=drive_link)
- Системне програмування С і С++ (Державний університет інтелектуальних технологій і зв'язку. Одеса) <https://suitt.edu.ua/wp-content/uploads/2024/04/systemne-prohramuvannia-c-i-c.pdf>
- Системне програмування (Факультет електроніки ЛНУ)  
[https://electronics.lnu.edu.ua/wp-content/uploads/2022\\_OK\\_27\\_syl.pdf](https://electronics.lnu.edu.ua/wp-content/uploads/2022_OK_27_syl.pdf)
- Системне програмування. Спеціальність 123 - КІ (Технічний фаховий коледж Луцького національного технічного університету) <https://e-tk.lntu.edu.ua/course/view.php?id=277>

# Overview

- Systems Programming in C++ (Technische Universität München)  
<https://db.in.tum.de/teaching/ss19/c++praktikum/>
- Practical course: Systems Programming (Chair of Distributed Systems & Operating Systems at TU Munich) <https://github.com/ls1-sys-prog-course/docs>
- CS4414:Systems Programming (Computer Science at Cornell University)  
<https://www.cs.cornell.edu/courses/cs4414/2023sp/Schedule.htm>
- CSE 20289: Systems Programming (University of Notre Dame)  
<https://www3.nd.edu/~pbui/teaching/cse.20289.sp17/>

# System Programming

Traditionally speaking, all Unix programming is system-level programming. Historically, Unix systems did not include many higher-level abstractions. Even programming in a development environment such as the X Window System exposed in full view the core Unix system API.



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# **Системне програмування.**

**Спеціальність: F5 Комп'ютерна інженерія (НЕФК)**

## **Зміст дисципліни**

Змістовий модуль 1. Вступ. Мови системного програмування.  
Змістовий модуль 2. Програмування в системних оболонках на прикладі Bash.  
Змістовий модуль 3. Основні засоби, конструкції та принципи програмування мовою Python.  
Змістовий модуль 4. Візуальне програмування з використанням фреймворку pyQt.

# About

- What Is System Programming? <https://www.coursera.org/in/articles/system-programming>
- The Programming Language Guide  
<https://www.youtube.com/watch?v=2lVDktWK-pc>
- Python Vs C++ Vs Java! <https://youtu.be/hnlz0YYCpBU>
- Python vs C/C++ vs Assembly side-by-side comparison  
<https://www.youtube.com/watch?v=3PclJKd1PKU>

# System software written in Bash

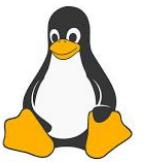
Canon LPB-6000B driver installer

```
sde@thames:~$ pass  
Password Store  
└── Bank  
    ├── BoS  
    └── Nationwide  
        └── Smile  
└── Home  
    ├── Bank-Vault  
    └── Safe2  
    └── Shopping  
        ├── Aldi  
        ├── Amazon  
        ├── HMV  
        ├── JohnLewis  
        ├── Mands  
        ├── Poundland  
        └── RiverIsland  
└── Work  
    ├── client-45  
    ├── Client-46  
    ├── Email  
    ├── google.com  
    └── mobile-phone  
[sde@thames ~]$
```



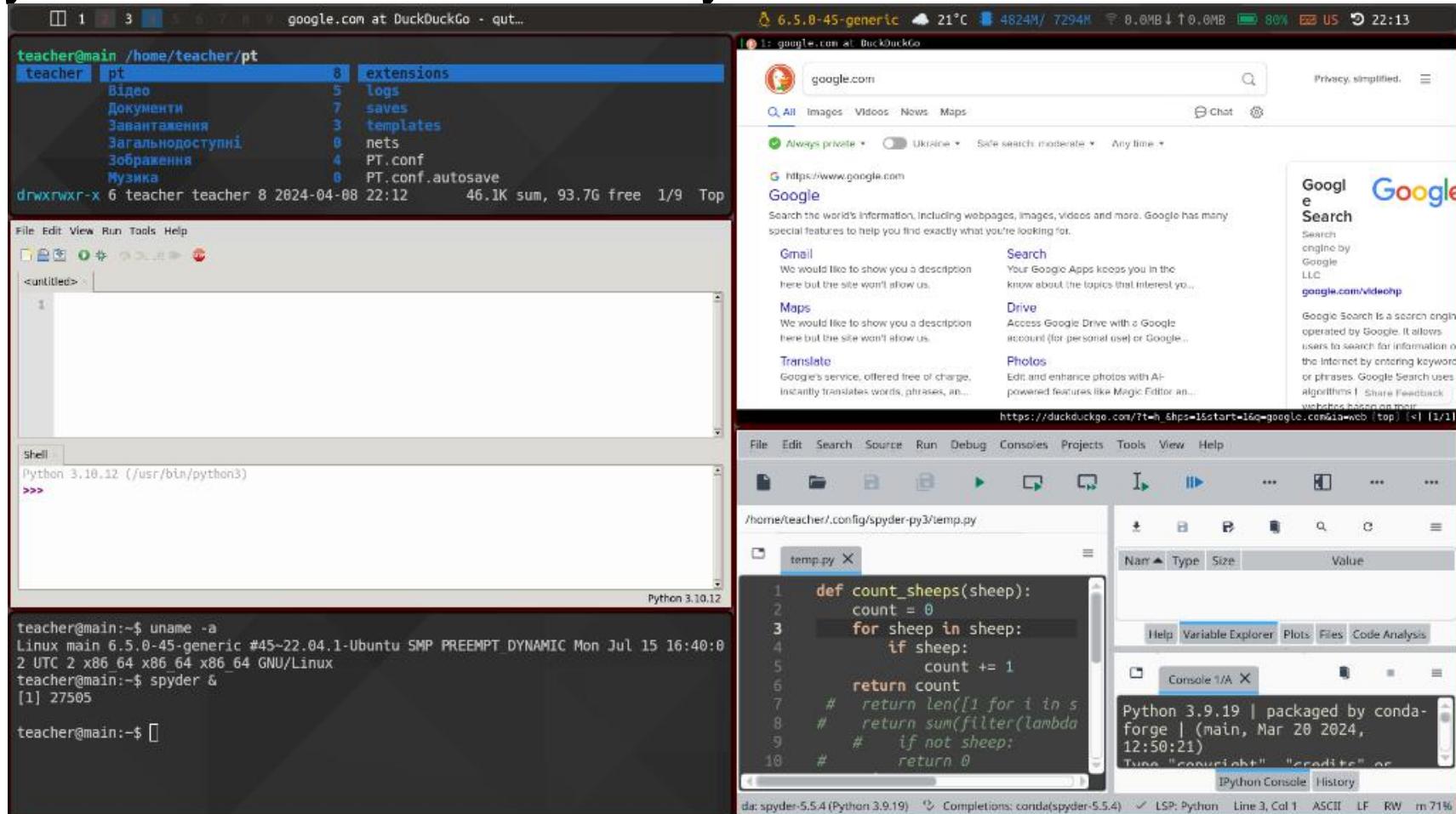
[https://github.com/hieplpvip/ubuntu\\_canon\\_printer](https://github.com/hieplpvip/ubuntu_canon_printer)

Linux init scripts



```
root@minix-env:~# systemctl init 6  
Stopping Session 1 of user root.  
Stopping User Manager for UID 0...  
Stopping Save/Master Sound Card State...  
[OK] Stopped target System Time Synchronized.  
[OK] Closed Load/Save RF Kill Switch State /dev/rfkill Watch.  
[OK] Stopped SELinux Cleanup of Temporary Directories.  
[OK] Stopped target Multi-User System.  
Stopping Network Name Resolution...  
Stopping Kernel Logging Service...  
Stopping HelloWorld.service...  
Stopping Systemd-User-Manager Service...  
[OK] Stopped target Logins.  
Stopping Getty on tty1...  
Stopping Serial Getty on ttys0...  
Stopping Serial Getty on ttys1...  
[OK] Stopped target Serial Card.  
[OK] Stopped Systemd-User-Manager.  
Stopping Kernel Logging Service...  
[OK] Stopped Network Name Resolution.  
[OK] Stopped Serial Getty on ttys0.  
[OK] Stopped Serial Getty on ttys3.  
[OK] Stopped getty on tty1.  
[OK] Stopped User Manager For UID 0.  
[OK] Stopped User Manager For UID 1.  
[OK] Stopped Save/Master Sound Card State.  
[OK] Stopped HelloWorld.service.  
[OK] Stopped User Manager For UID 6.
```

# System software written on Python



# Python everywhere

```
root@almalinux: ~# sudo dnf install nginx
Last metadata expiration check: 0:43:29 ago on Sun 26 Jun 2022 07:37:31 PM EDT.
Dependencies resolved.

Package           Architecture Version      Repository  Size
Installing:
nginx            x86_64    1:1.26.1-10.el9.alma   appstream  504 k
Installing dependencies:
almalinux-logos-https  noarch    98.5.1-1.1.el9      appstream  18 k
nginx-filesystems  noarch    1:1.26.1-10.el9.alma   appstream  11 k

Transaction Summary
Install 3 Packages

Total download size: 623 k
Installed size: 1.8 M
Is this ok [y/N]: y
```

MkDocs

Project documentation generator

MkDocs is a fast, simple and lightweight project documentation generator that's designed towards building static project documentation. Documentation website files are written in Markdown, and configured with a single static configuration file, simply by defining the documentation source files the MkDocs needs to move automatically.

Getting started | User guide

## Features

Great themes available

Preview your site as you work

Host anywhere

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