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Task 3

Report

Guide for Graphviz

Graphviz

Graphviz (short for Graph Visualization Software) is an open-source graph visualization tool developed by AT&T Research Labs. It is widely used to represent structural information as diagrams of abstract graphs and networks.

Key Features:

Graph Description Language (DOT): Graphviz uses a simple plain text language called DOT to describe graphs.

Automatic Layouts: It can automatically position nodes and edges to create readable visual representations.

Output Formats: Supports various output formats such as PNG, PDF, SVG, PostScript, and more.

Example DOT Syntax: CODE

```
digraph G {
```

A -> B;

B -> C;

A -> C;

}

In Simple Terms:

Graphviz turns text instructions into graph images, making it easy to visualize relationships between objects—like flowcharts, family trees, or data structures.

Example Use Case:

If you write this in a .dot file:

digraph G {

A -> B;

B -> C;

A -> C;

}

Graphviz will generate a diagram showing directed arrows from **A to B, B to C, and A to C.**

Main Features:

Easy syntax (DOT language)

Multiple layout engines for different styles of graph arrangement

Export to many formats (e.g., PNG, SVG, PDF)

Widely used in computer science, data analysis, system design, etc.

Installation

Windows: Download from https://graphviz.org/download/

Online Tools

https://dreampuf.github.io/GraphvizOnline

Allows instant graph rendering in the browser

Further Resources

Official Site: https://graphviz.org

DOT Language Guide: https://graphviz.org/doc/info/lang.htm

STEPS To use Graphviz On Windows

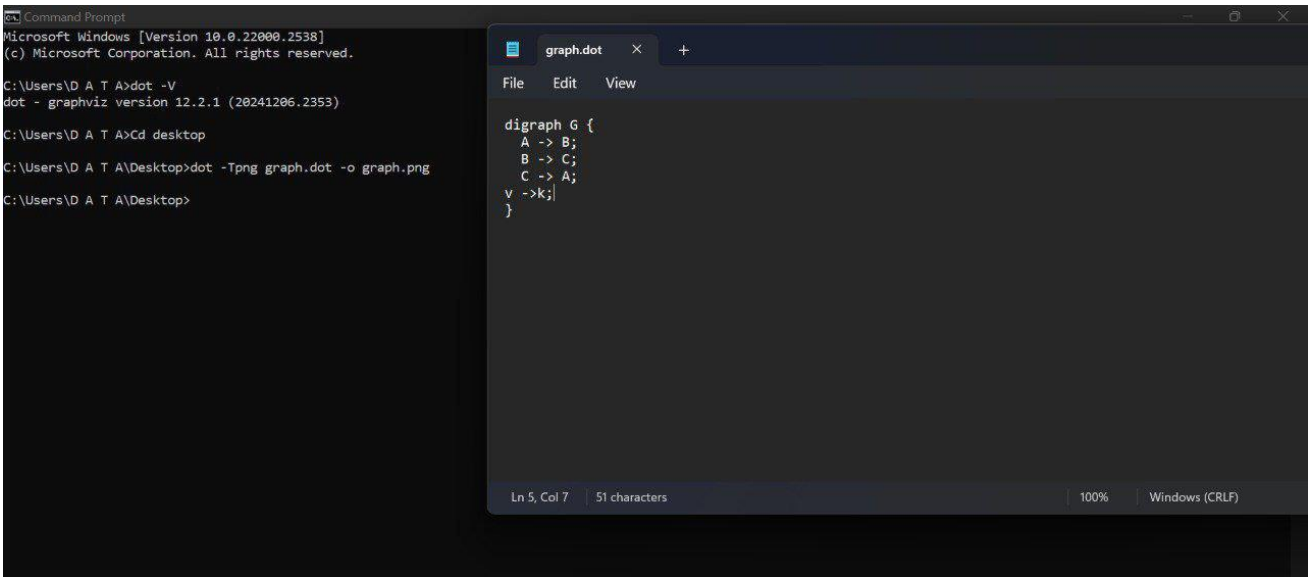
METHOD : 1

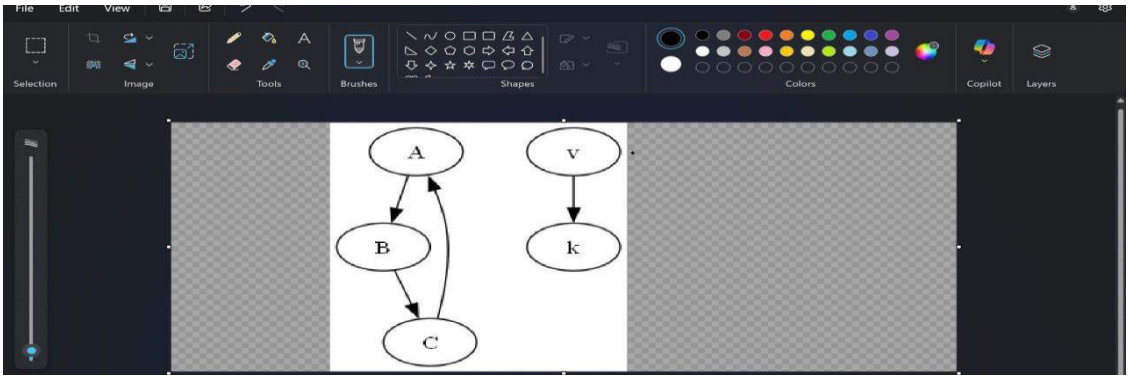
To use Graphviz:

1) First Install Graphviz from the official site https://graphviz.org/ complete all the installation process.

2) Open Command Prompt (cmd).
3) Type: dot –V to verify installation.
4) Create a dot file use any text editor notepad to create a file named graph.dot with the code content and save the file on desktop.
5) Cd desktop
6) [Type the below command to run in cmd]
   dot -Tpng graph.dot -o graph.png
7) Open graph.png to see the graph. Now image gets created on desktop output is displayed you can now open it on painto in any .png form

Below attached is the image for reference





Method : 2

Or Another method **After installation of Graphviz**

USE OF GUI : Very simple to use interface as per our requirement

1) If you installed GVEdit which comes with graphviz on windows open it from start menu, paste your DOT code and click RUN or render

2) Open GVEdit, which may have installed with Graphviz.
3) Search “GVEdit” in the Start Menu.
4) **Graphviz** gives you **version 2.38 which** contains **gvedit.**
5) You can also download it from https://graphviz.org/download/ which is very hard to find, but on the Downloads page, you can find this text:
6)

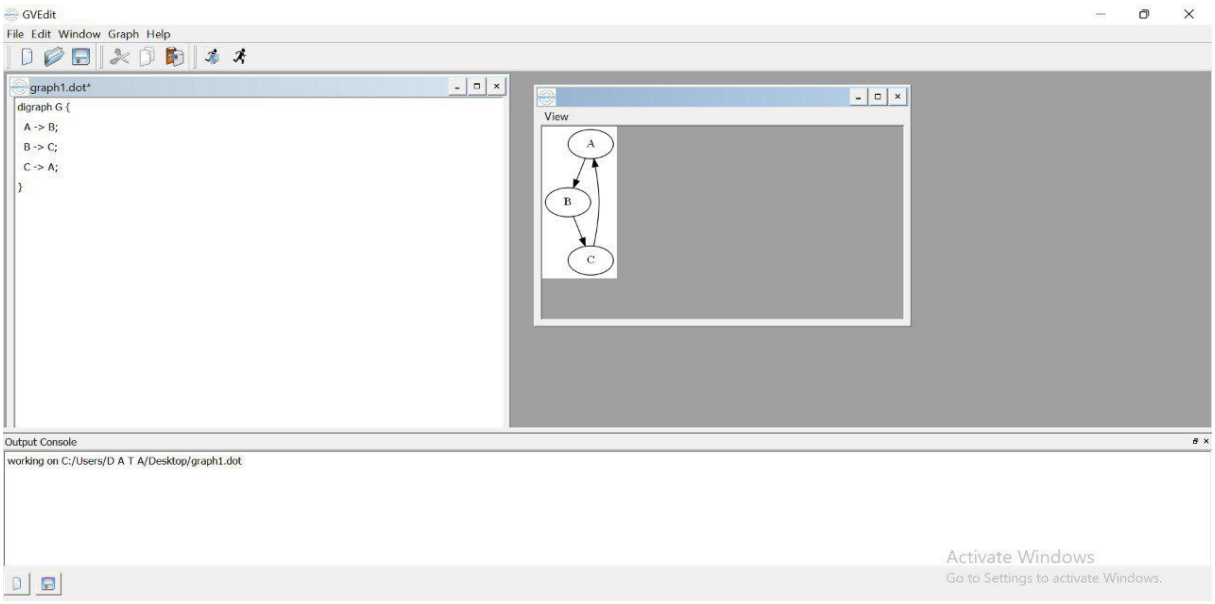
“Mostly correct notes for building Graphviz on Windows can be found here.”

“Download the Windows source package from: http://www.graphviz.org/Download_windows

7) After opening GVedit :
   Open new file from new file option then write the dot code save it and use F5 Option to run the code
   we can run code and generate output
   New output image of graph is generated in new window panel

IMP NOTE : While saving the code file save name with .dot extention and keep save as type { ALL FILES } extension and then press F5 to run the output

Image for reference given below



METHOD :3

OR Another method

1) Use OnlineGraphviz Editor No install needed:

2) GO to

https://magjac.com/graphviz-visual-editor

https://dreampuf.github.io/GraphvizOnline/

3) Write dot code and see the result instantly

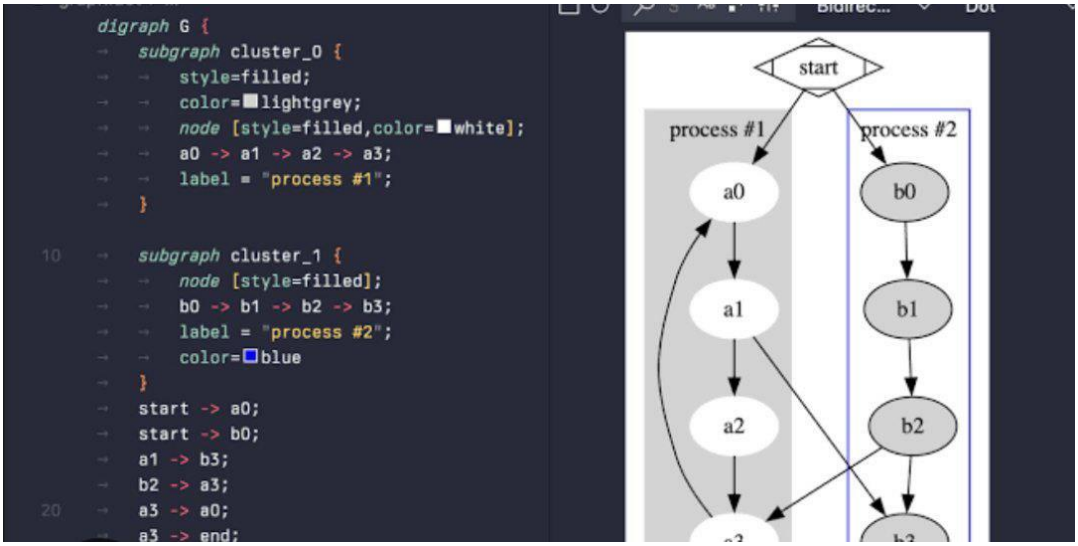
To render a graph:

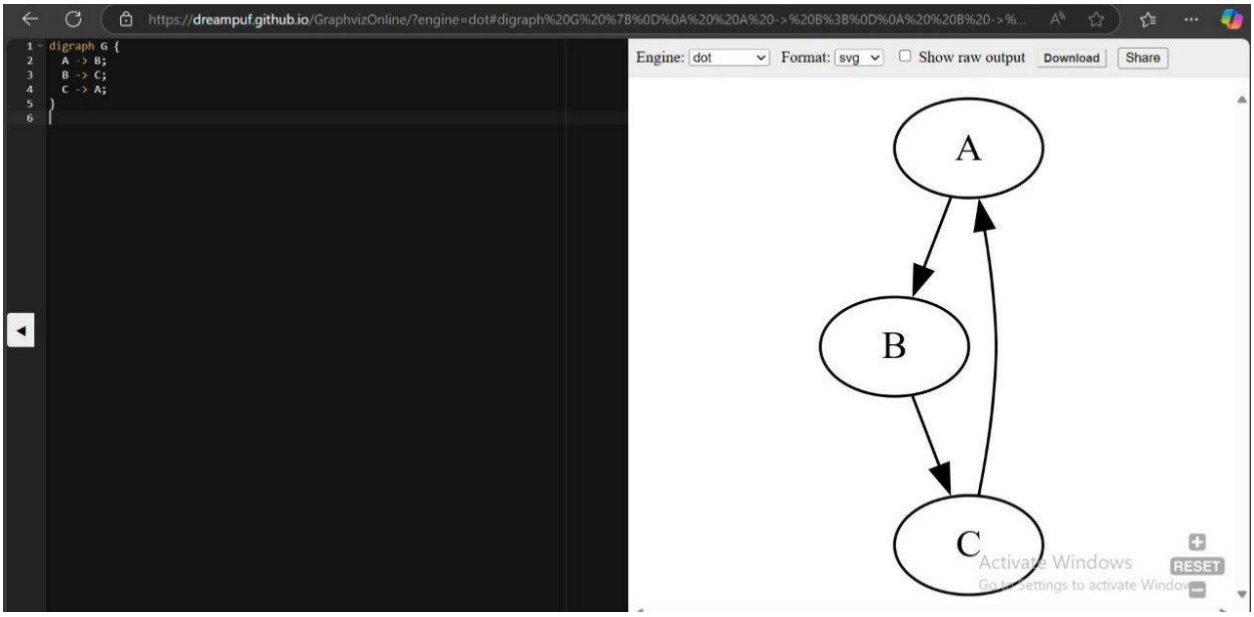
content:

```
digraph G {
  A -> B;
  B -> C;
  C -> A;
}
```

Then run: Output will be automatically generated with final result.

Below is the image for reference





METHOD :4

Using

VS code Extension

You can install this extension from the Visual Studio Marketplace.

This extension requires Graphviz to be installed. Also, make sure that the extension can find the dot executable provided by Graphviz. Either make sure the directory containing the dot

executable exists in the PATH or Path environment variable, or specify the path of the dot executable with graphvizPreview.dotPath configuration.

Install graphviz preview extension in vs code

Open preview

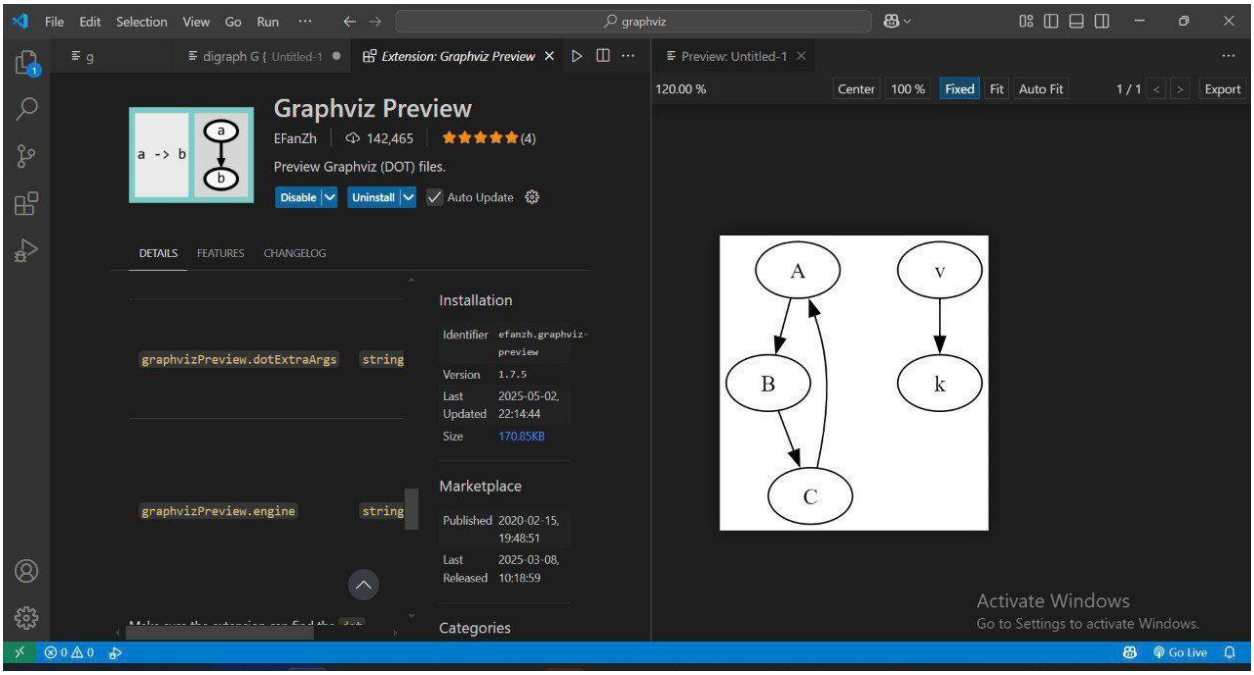
Open the Command Palette (usually by pressing Ctrl + Shift + P), then select “Graphviz: Open Preview to the Side”.

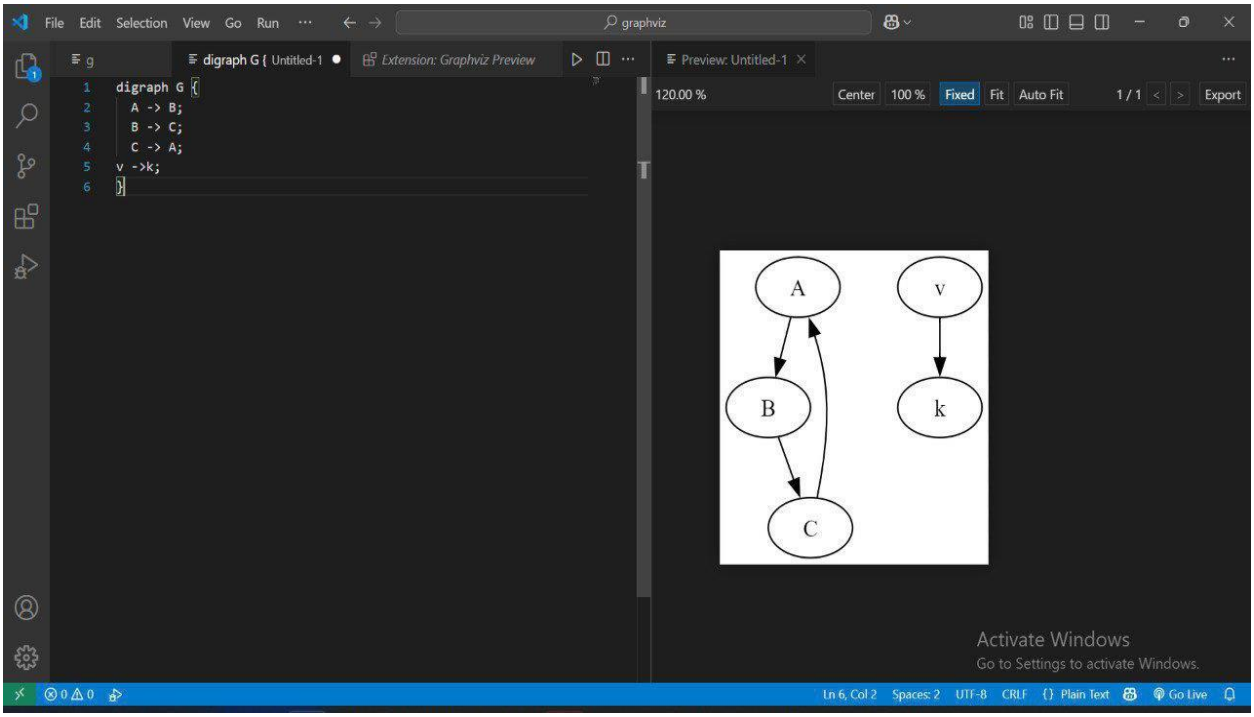
Write code to execute

Manipulate preview

Previous graph P

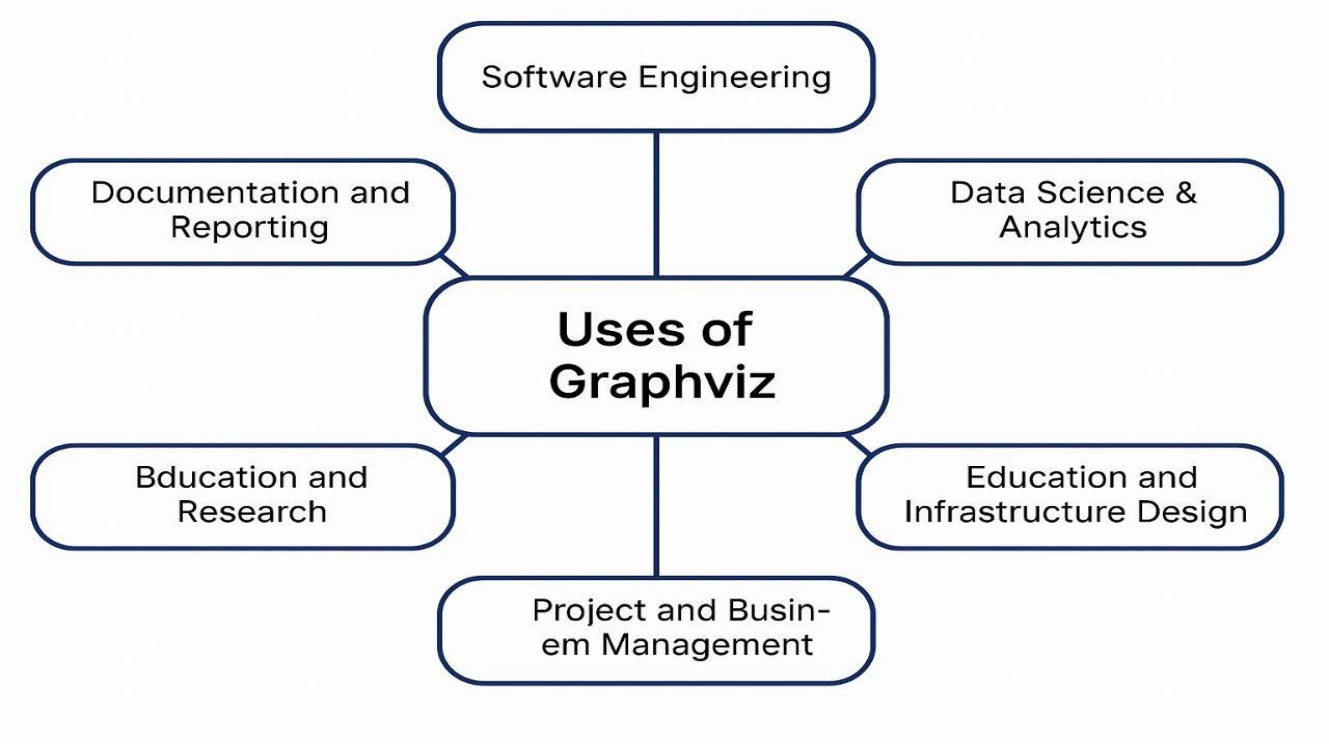
Next graph N





Some Uses OF Graphviz

Graphviz has important applications in networking, bioinformatics, software engineering, database and web design, machine learning, and in visual interfaces for other technical domains.



Graphviz is open source graph visualization software. It has several main graph layout programs. It also has web and interactive graphical interfaces, and auxiliary tools, libraries, and language bindings.

Conclusion

Graphviz is a highly effective and versatile tool for visualizing complex structures through graphs. Its use of the DOT language makes graph creation straightforward and customizable, while its support for various layout engines allows for flexibility in presentation. Whether for academic, technical, or professional purposes, Graphviz helps simplify the understanding of relationships and hierarchies within data. Its broad compatibility and open-source nature make it a valuable asset for anyone needing clear, precise graph-based visualizations.

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