Al-Furat Al-Awsat Technical University
Technical Institute of Najaf
Department of Computer Systems Technologies
2nd Grade

Visual Programming

Introduction to Visual Programming
Lecture 1

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Lecture Objectives

At the end of this lecture, you will:

- Learning what is Programming.
- Recognizing what is Visual Programming.
- Understanding Visual Programming Objective.

Pre - Test

Short answers

1. Programming
2. What is Visual Programming ?
3. Can we find any visual programming language without code ?

Definitions

- Programming: “The process of transforming a mental plan of desired actions for a computer into a representation that can be understood by the computer”.
- Visual Programming Language (VPL): “Is a type of programming language that lets humans describe processes using illustration”.

Visual Programming Objective

- The objective of many VPLs is to make programming more accessible, in particular to reduce the difficulties that beginners face when they start programming.

Microsoft Visual Programming Language (VPL)

- Microsoft Visual Programming Language (VPL) is a visual programming and dataflow programming language developed by Microsoft
- VPL is based on the event-driven and data-driven approach.

Microsoft Visual Programming Language (VPL)

- The programming language is distinguished from other Microsoft programming languages such as Visual Basic and C#, as it is the only Microsoft language that is a true visual programming language.

Microsoft Visual Programming Language (VPL)

- Microsoft has utilized the term "Visual" in its previous programming products to reflect that a large degree of development in these languages can be performed by "dragging and dropping" fashion.

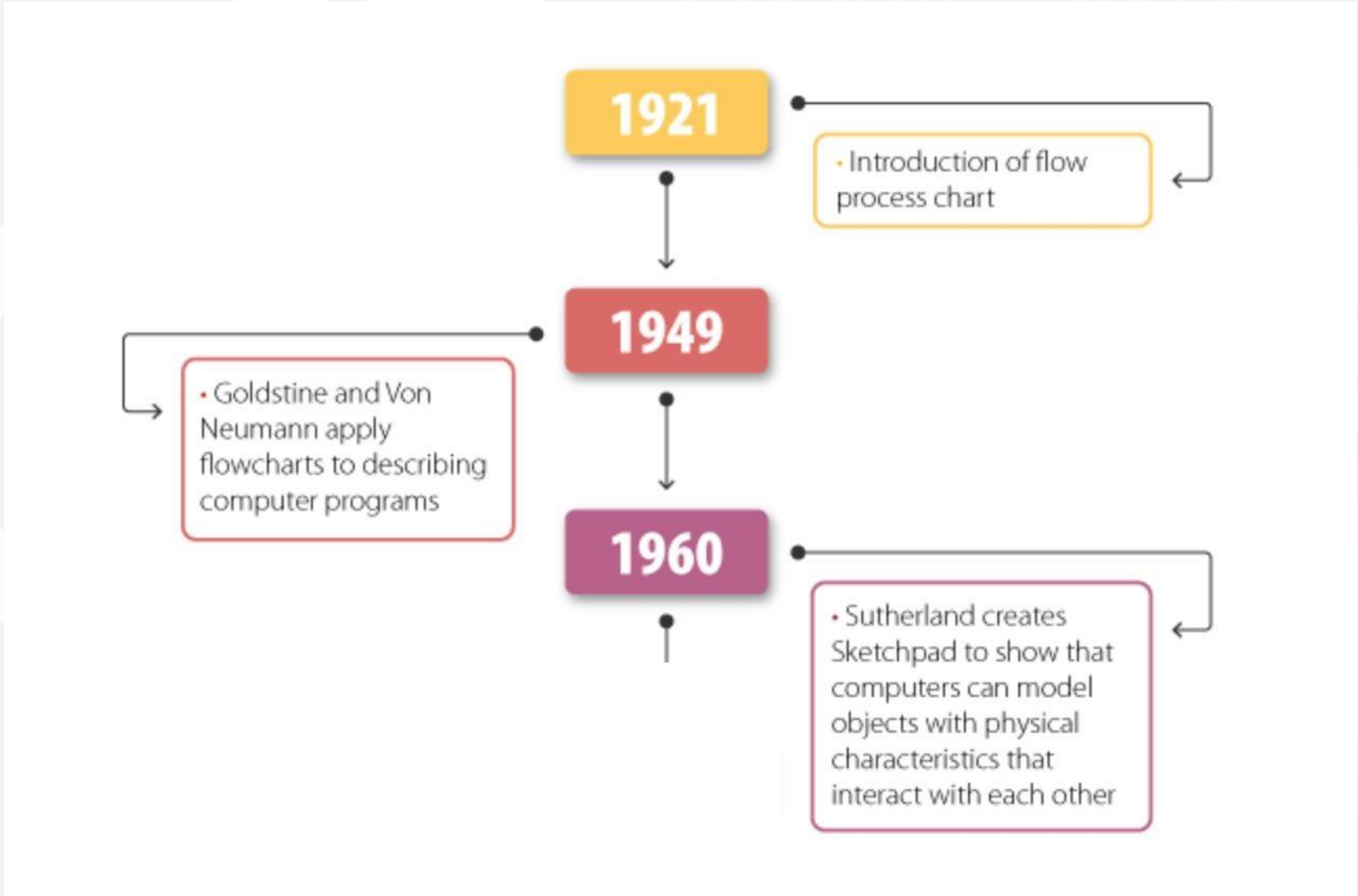
Visual Programming Characteristics

Programming Languages like Visual (Basic, C++, C#, F#), Delphi, MATLAB,

Java, etc. are primarily:

- A graphical GUI builder
- A visual user interface

A Brief History of Visual Programming



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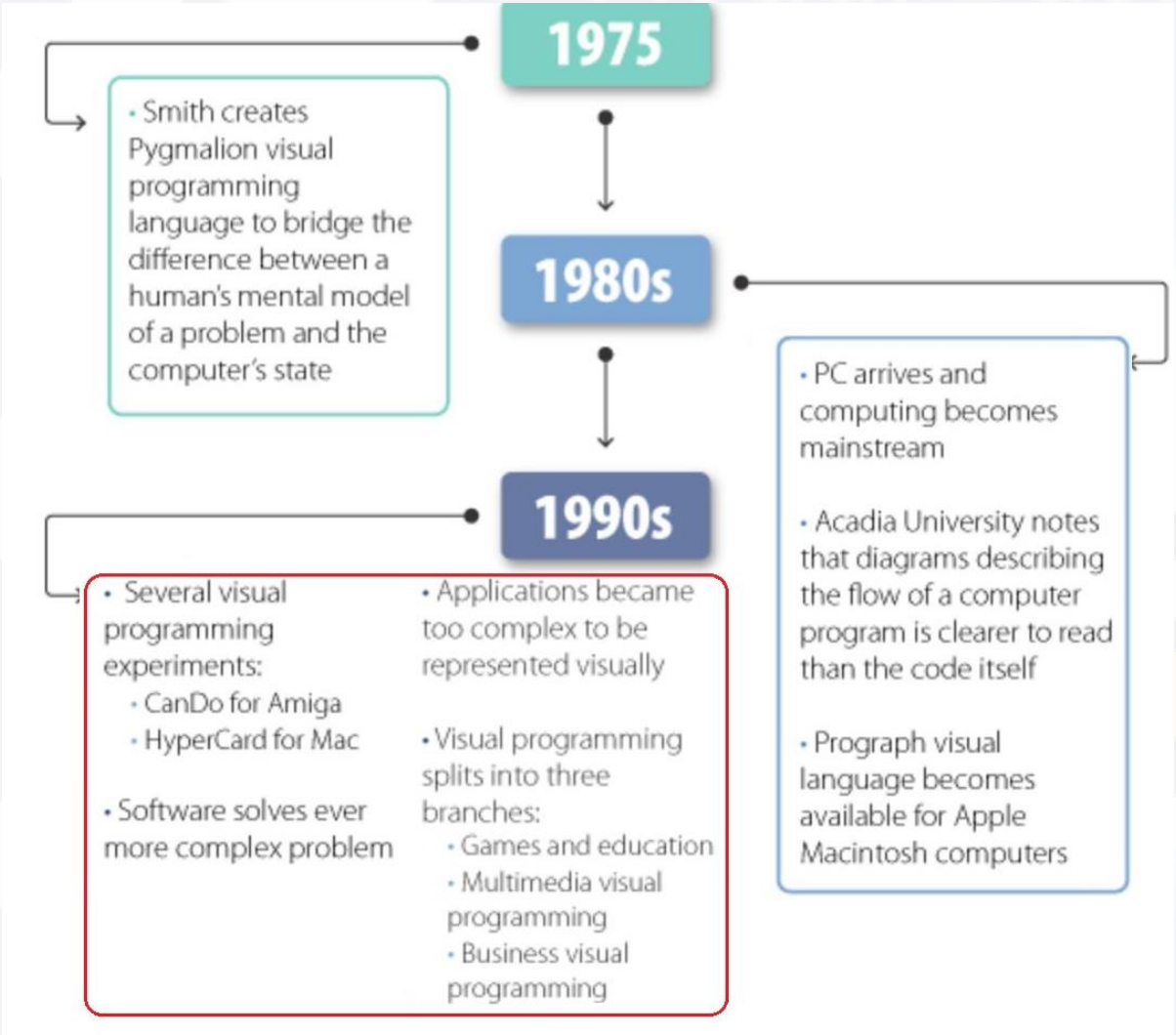

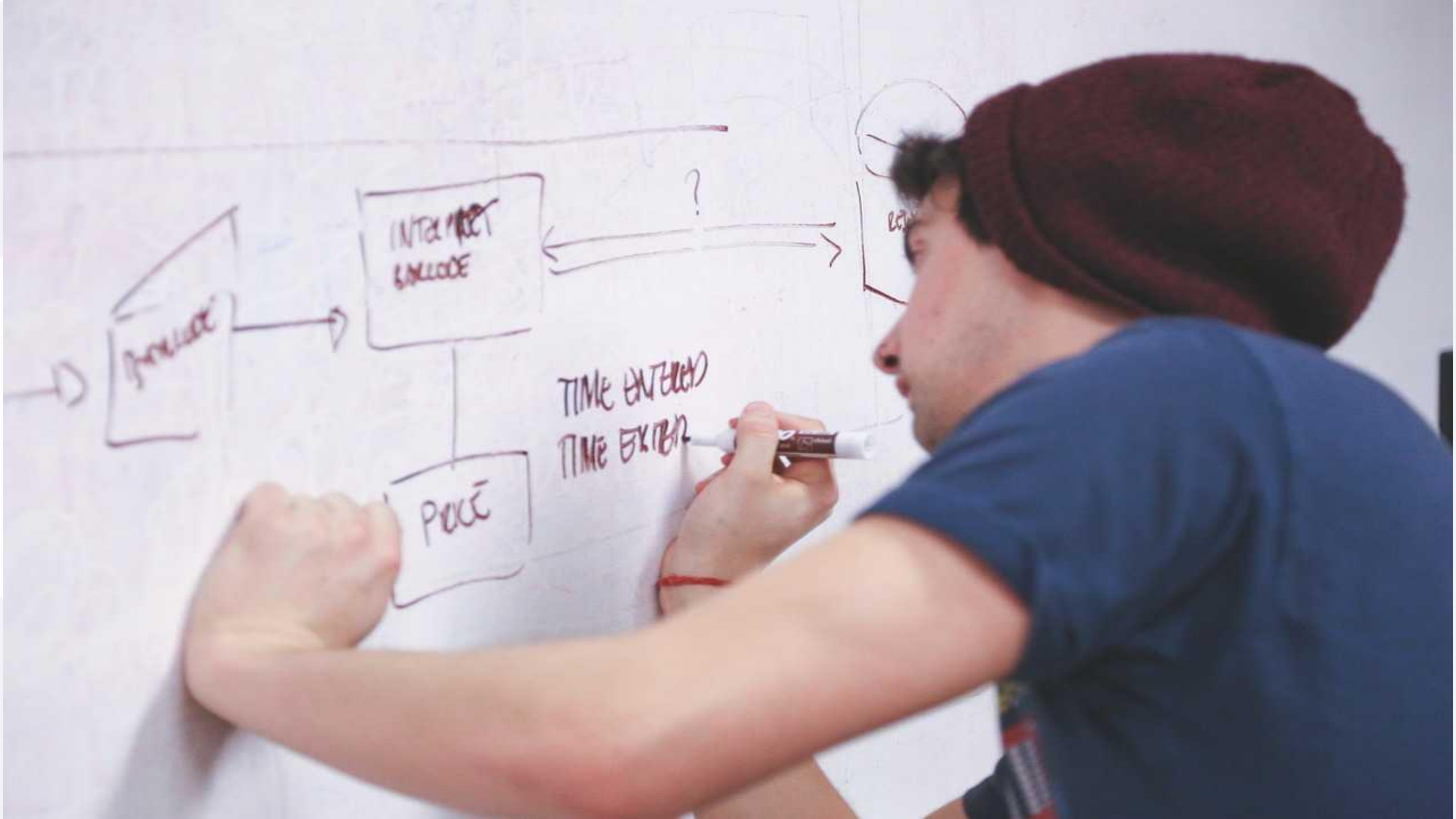

Visual, but still programming

Beyond some specific fields however, so far VPLs are nowhere near the popularity of classical programming languages.

Visual, but still programming

One reason why they are sometimes perceived as a disappointment is that unlike hand-drawn “boxes and arrows”, they still require a precise, unambiguous definition of the control flow.

Visual, but still programming

In short, visual programming is still programming.

Even precise UML-like diagrams describing processes often rely on context and assumptions, and cannot be interpreted directly to make a program.

Visual, but still programming

Even though VPLs can make learning easier and reduce syntax difficulties, every type of programming requires users to become familiar with general as well as language-specific programming concepts (for example the concept of variables, and the generalities of imperative programming).

Visual, but still programming

So to be able to write a program with a VPL, you still need to think like a programmer.

No silver bullet

- VPL development environments are sometimes specialized, applied to a reduced domain (for example game design).

No silver bullet

- This way programs can be executed directly in an integrated execution environments, and the commonly used logical blocks are not so numerous that syntax discovery becomes difficult.
- But these points are hard to achieve with a general-purpose VPL.

VPL Classification

- **Purely visual languages**

Icons or other graphical representations are manipulated

e.g., Cube, VIPR, Prograph, …

- **Hybrid text and visual systems**

Programs are created visually and then translated into an underlying textual language usage of graphical elements in an otherwise textual language

e.g., Rehearsal World

VPL Classification

- Programming-by-example systems

Teach a system how to perform a task

e.g. Rehearsal World, Pygmalion

- Constraint-oriented systems

Popular for simulation design

e.g. ThingLab, ARK

VPL Classification

- Form-based systems

Uses a spreadsheet metaphor

e.g. Forms/3, NoPumpG

Post - Test

Short Answer

- What Visual Programming is mean ?
- Can we find any visual programming language without code ?

Homework

Read about Thinking and Designing then Write a report with 1 to 3 pages about it.

Summary

We have looked at:

- Programming.
- Visual Programming.
- Visual Programming Objective

Next: Thinking & Designing


Visual Basic Dot Net
thank you!