Computer Graphics
for Engineering
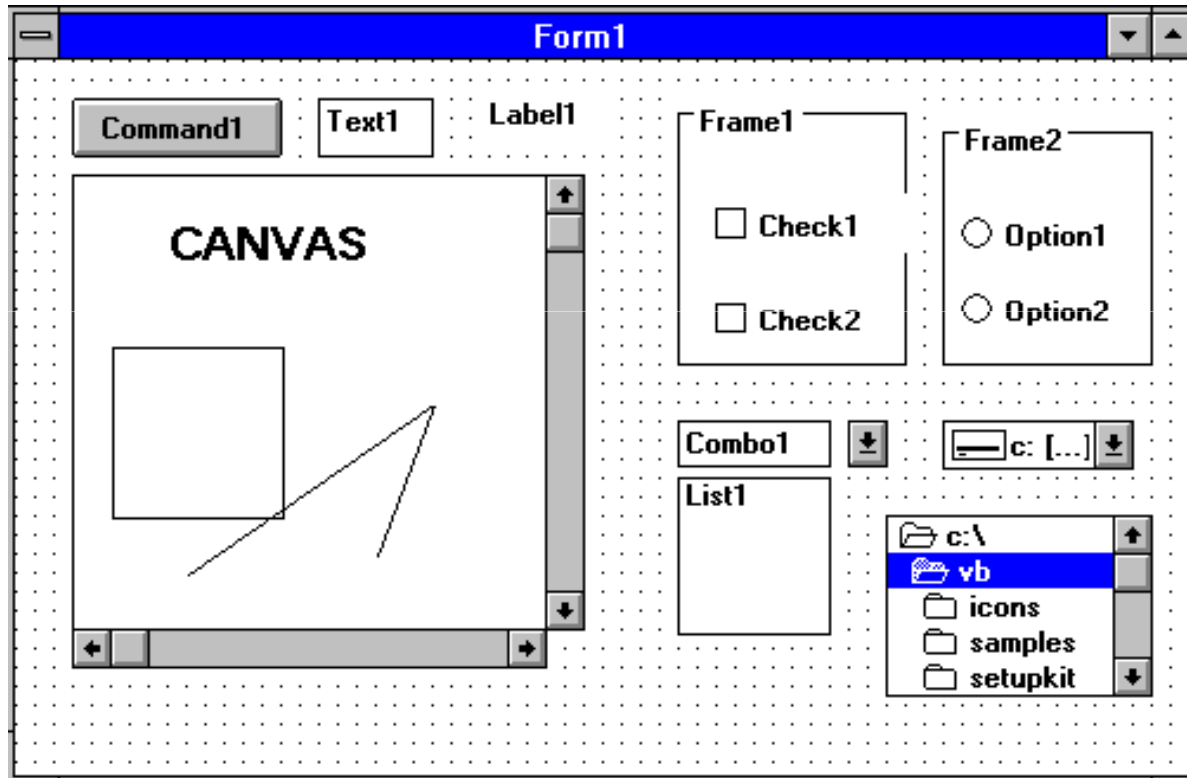
Graz University of Technology

Numerical simulation
in technical sciences

Event Driven Programming

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Common Interface Objects

Programming Strategies

Toolkit of Interface (Motif, SDK, ...)

Interactive Graphic Program

Graphics System (Xlib, GDI, ...)

Devices

User

Computer
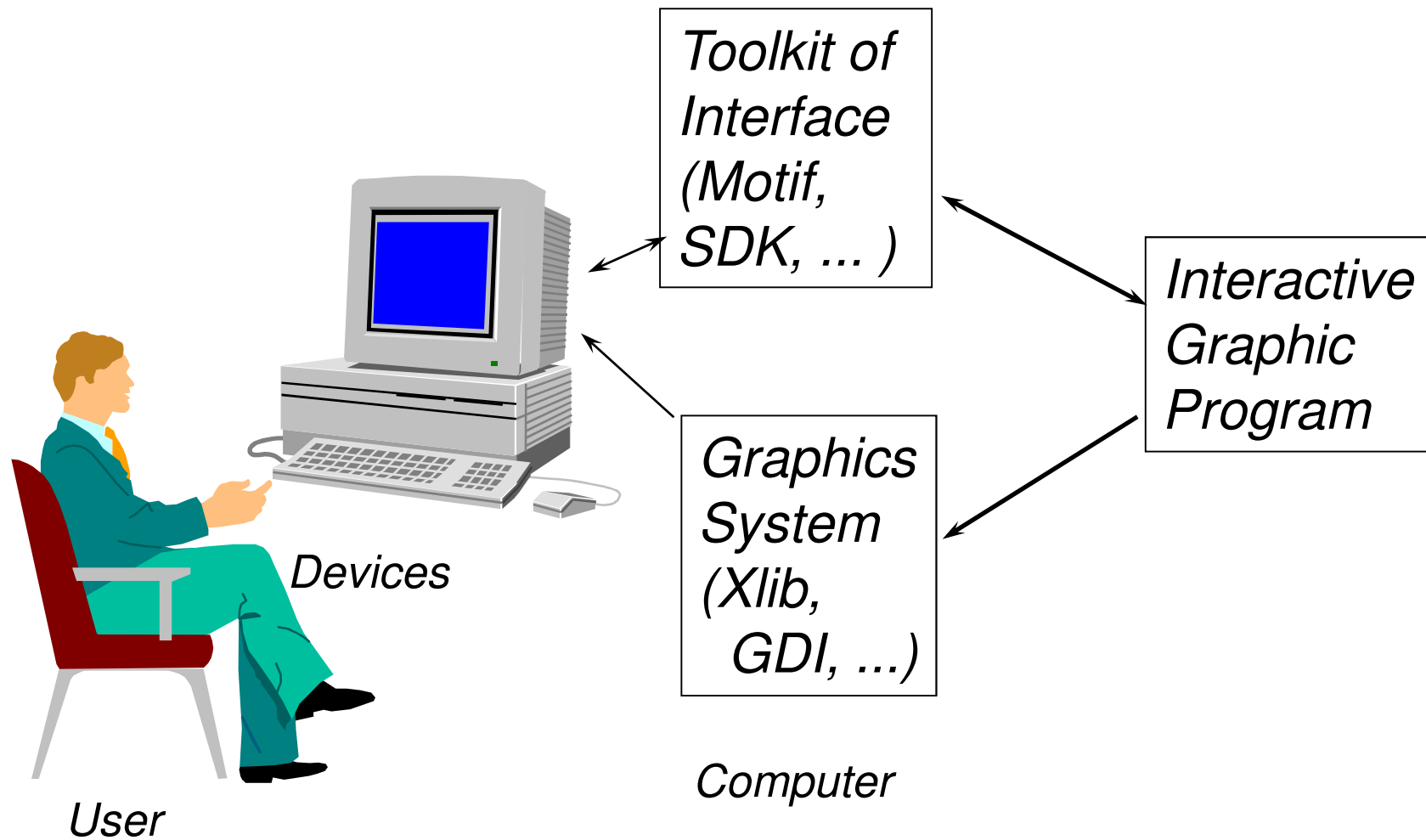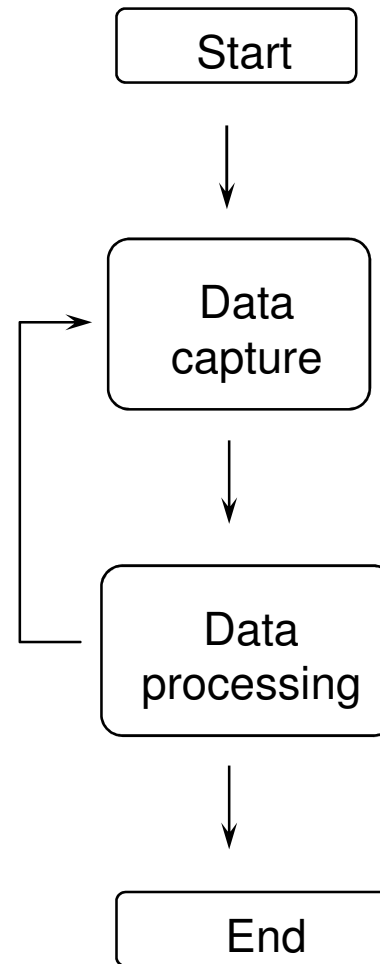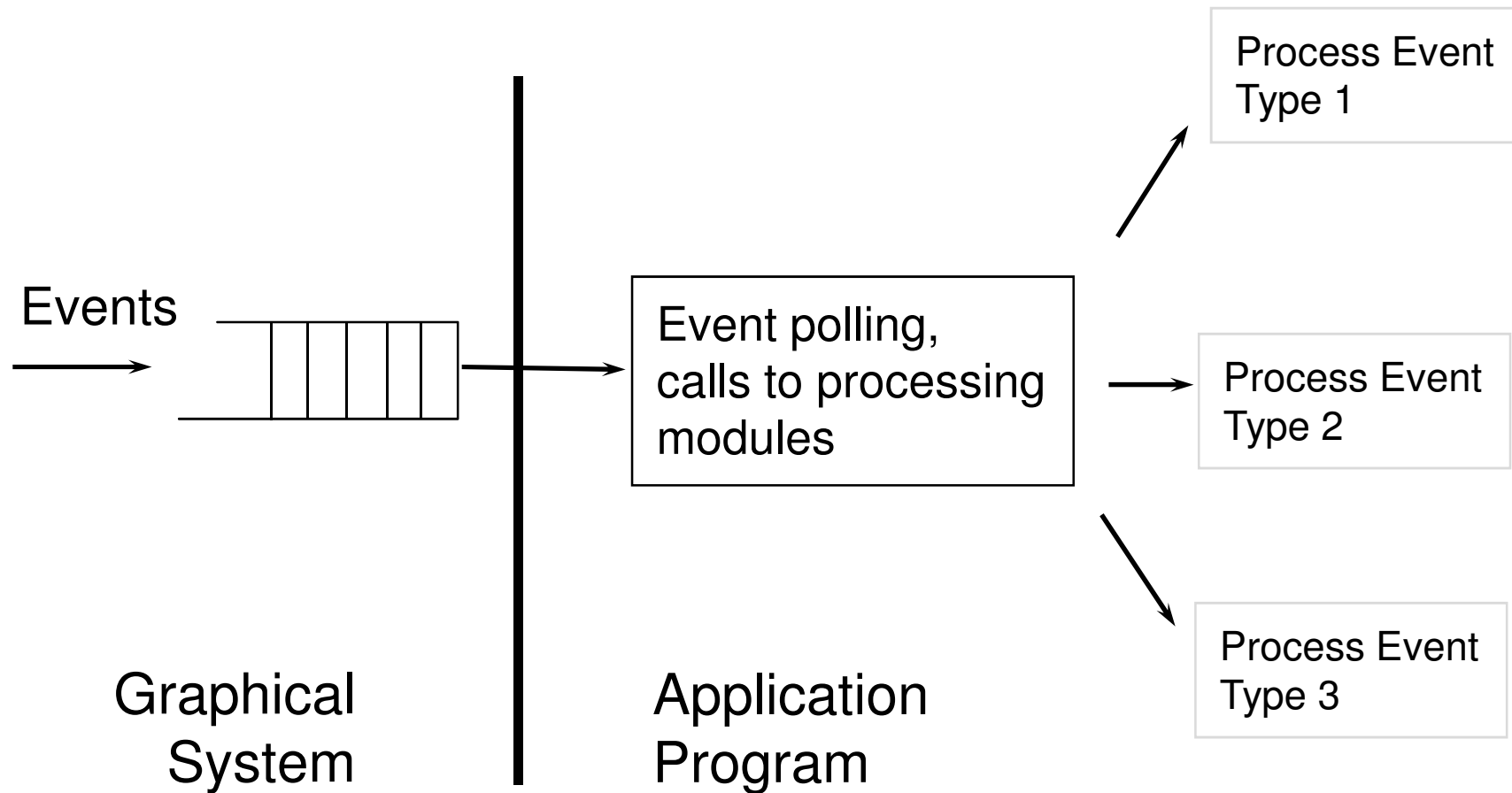
Conventional Programming

Conventional Programming

Commands are executed according to a pre-established and sequential order.

```
        Start
          │
          ▼
      Data
      capture ◄──┐
          │      │
          ▼      │
      Data ──────┘
      processing
          │
          ▼
        End
```

Interaction Techniques

- *Request*

- *Sample*

- *Event*
  - *events* [Xlib, SDK]
  - *callbacks* [*Motif, IUP, Visual...*]
  - *listeners* [*Java/OO*]
  - *signals & slots* [*Qt*]

Event Model

Events

Graphical
System

Event polling,
calls to processing
modules

Application
Program

Process Event
Type 1

Process Event
Type 2

Process Event
Type 3

Typical Events (WIMP)

KeyPress
KeyRelease
ButtonPress
ButtonRelease
Motion
LeaveNotify
EnterNotify
WindowExposure
Resize
Timer
Idle
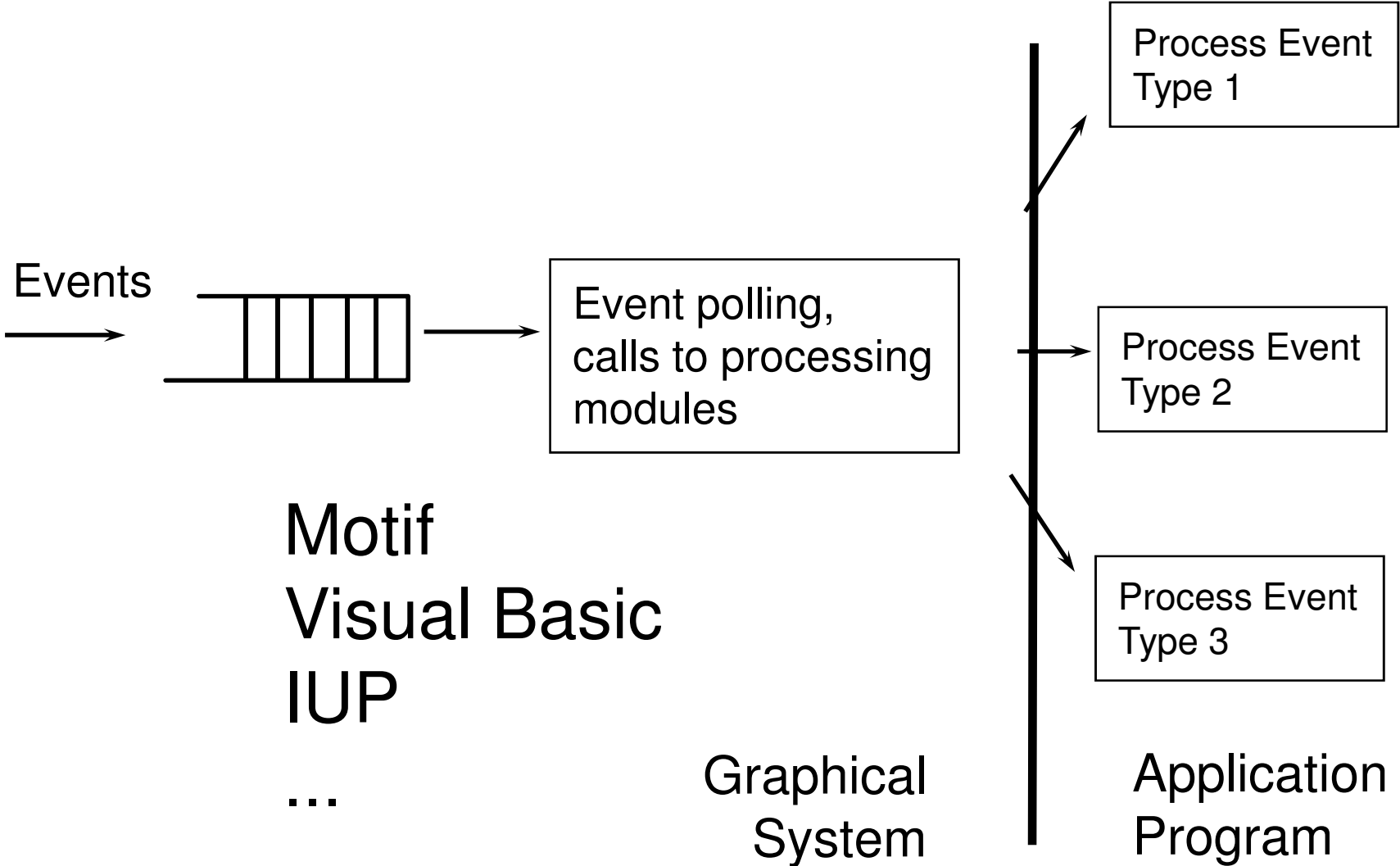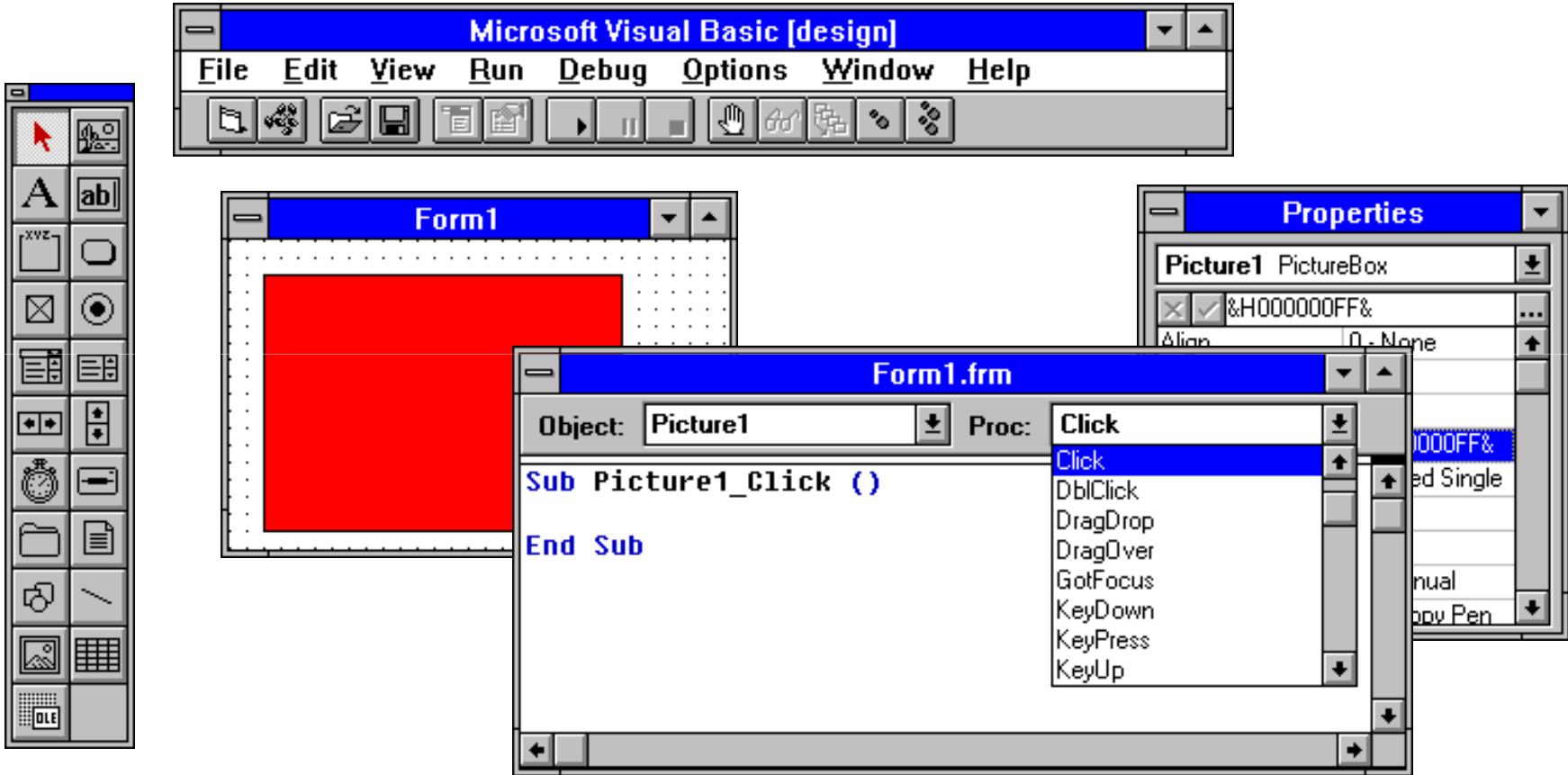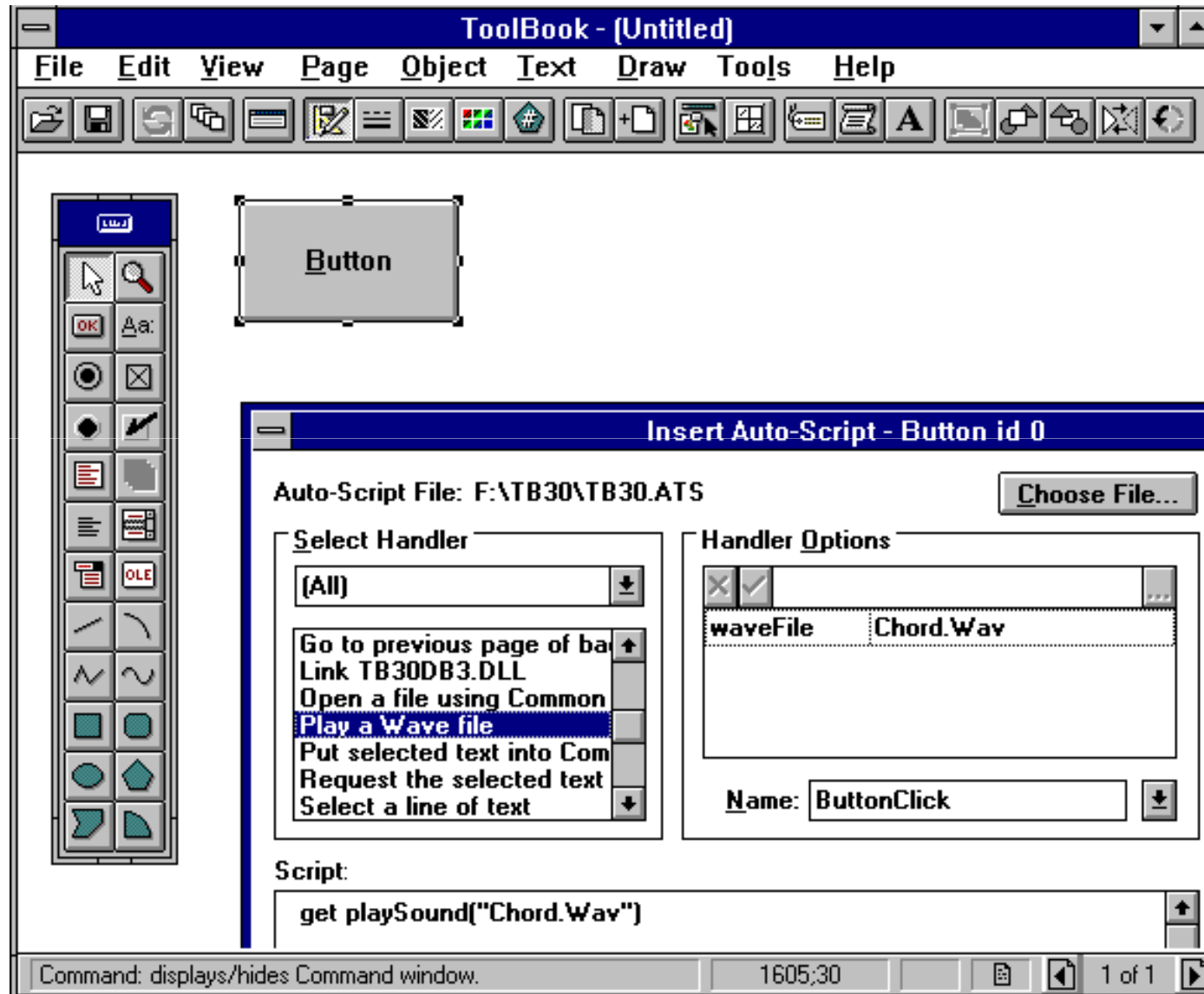

Window A

Window B

Window C

Callback Model

Events →

Event polling,
calls to processing
modules

Motif
Visual Basic
IUP
...

Graphical
System

Process Event
Type 1

Process Event
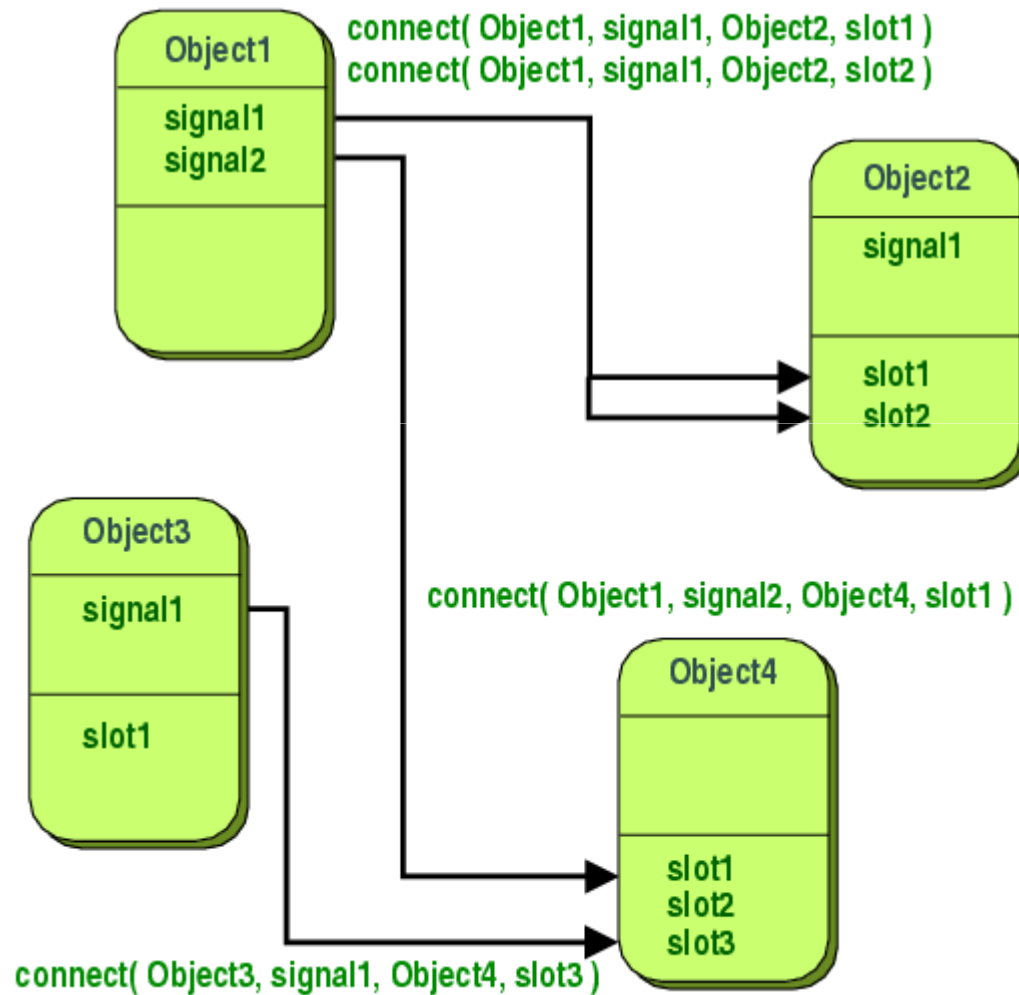Type 2

Process Event
Type 3

Application
Program
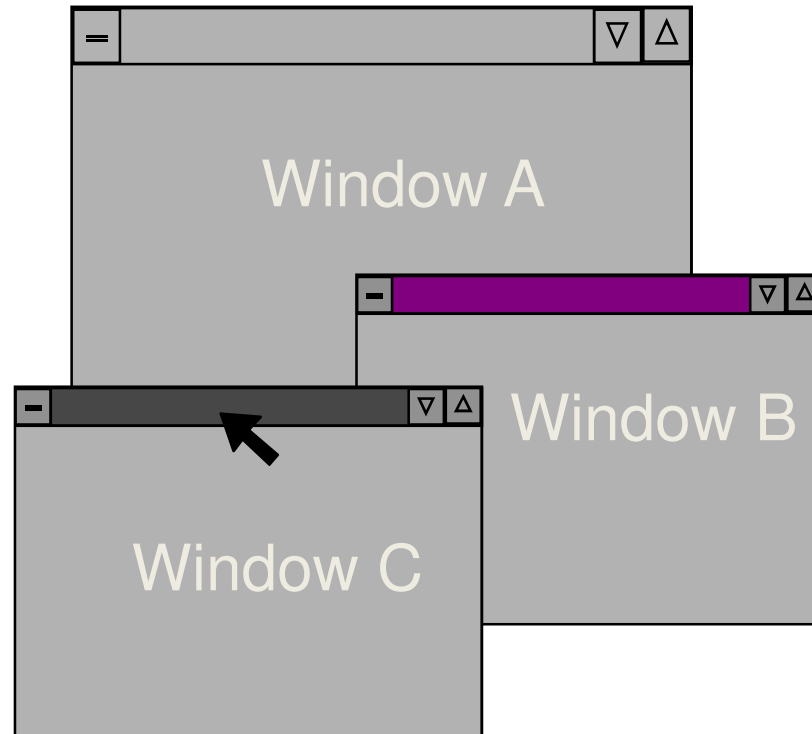
Visual Basic

ToolBook

Signals & Slots [Qt] Model

Level of Abstraction and Scope

ABSTRACTION

LESS CAPABILITY

EASINESS

ToolBook

VisualBasic

EDG/vix

Qt

Motif

IUP/lua

SDK

MORE CAPABILITY