# Comparison of Object-Oriented Programming Languages

Timothy Clark (488232)

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#### Outline

Introduction What is object orientation? Comparison Variables Language Comparison Conclusion

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What is object orientation?

**Comparison Variables** 

Language Comparison Visual Basic Java Python

#### Conclusion

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#### Introduction

#### Looking at programming languages

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# Introduction

- Looking at programming languages
- Everyone has their favourite language

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- Everyone has their favourite language
- Object oriented languages are quite popular

# Introduction

- Looking at programming languages
- Everyone has their favourite language
- Object oriented languages are quite popular
- Choose the right tool for the job

#### What is object orientation?

Type of programming language

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  - Message Passing

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  - Methods
  - Message Passing
  - Polymorphism
  - Abstraction

# What is object orientation?

- Type of programming language
- Characterised by:
  - Inheritance
  - Objects
  - Classes
  - Encapsulation
  - Methods
  - Message Passing
  - Polymorphism
  - Abstraction
- Designed to make code reuse and designing large systems easier

#### Comparison Variables

Hard to decide how to compare languages

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#### **Comparison Variables**

- Hard to decide how to compare languages
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- Hard to decide how to compare languages
- I've looked at:
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    - Fully Compiled

## Comparison Variables

- Hard to decide how to compare languages
- I've looked at:
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    - Fully Compiled is faster than
    - Half compiled (Compiled to byte code)

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    - Fully interpreted

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  - Portability:

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  - Portability:
    - Interpreted

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  - Portability:
    - Interpreted or Half Complied

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    - Compiled
    - Changes how easy it is to move platforms
  - Type Strength
  - What the language solves
  - How popular it is

Visual Basic Java Python

#### Visual Basic



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Visual Basic Java Python

# Visual Basic

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- Supports both strong and loose typing depending on compile options.

Visual Basic Java Python

# Visual Basic

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- Half Compiled (average speed)
- Only compiles for Windows
- Supports both strong and loose typing depending on compile options.
- Makes making GUI programs and prototypes for Windows very easy
Visual Basic Java Python

#### Java



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Visual Basic Java Python

#### Java

#### Sun

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Visual Basic Java Python

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Visual Basic Java Python

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- Large class library

Visual Basic Java Python

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- Large class library
- Good for teaching

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Visual Basic Java Python



Python Software Foundation

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Visual Basic Java Python

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Visual Basic Java Python

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Visual Basic Java Python

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  - Have a big default library
- Commonly used as scripting language

### Conclusion

Varying processing speed

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  - Python is a good platform independent prototyping, scripting and as a "glue" language
- Downfalls:
  - Visual Basic encourages sloppy programming practice
  - Java is harder to write programs in that the other two
  - Python is slow compared to the other two and can have more run-time typing errors

### When would I use these?

#### Visual Basic for fast Windows GUI prototyping

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### When would I use these?

- Visual Basic for fast Windows GUI prototyping
- Python for scripting, and prototyping on non windows platforms

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## When would I use these?

- Visual Basic for fast Windows GUI prototyping
- Python for scripting, and prototyping on non windows platforms
- Java for programming in larger more structured programs

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These slides are available at http://sucs.org/~eclipse

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- These slides are available at http://sucs.org/~eclipse
- Any Questions?

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