IMPLEMENTASI DAN PENGUJIAN PERANGKAT LUNAK

Telkom University
Genap 1819

Profil IMK

- Mata kuliah wajib 3 sks :
  - Pertemuan di kelas 3x50 menit per minggu
  - Tugas terstruktur 3x 50 menit per minggu
  - Self-learning 3x 50 menit per minggu
- Prequisite: APPL

Profil Dosen

- Nama :

  Jati Hiliamsyah Husen, S.T., M.Eng
- Kode dosen : JTI
- KK : SIDE
- Matkul ampuan : APPL, IMPAL, ManPro IT
- Peminatan Riset :

  Rekayasa perangkat lunak, diantaranya:
  - Requirement engineering
  - Software reliability
  - Software development culture
- Ruang : Panambulai lt.3
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POSISI IMPLEMENTASI DAN PENGUJIAN DALAM SE

IMPLEMENTASI DAN PENGUJIAN PERANGKAT LUNAK
CSH3E3 #1

by : Tim Pengajar APPL

Informatika – FIF - Telkom University

Sub Bahasan

1. Posisi IMPAL pada beragam model proses
2. Definisi & Kegiatan Implementasi
3. Bahasa Pemrograman Terstruktur & OO
4. Memilih Lingkungan Pengkodean
5. GitHub

SUB BAHASAN 1

- Posisi IMPLEMENTASI & PENGUJIAN pada beragam model proses pengembangan software

Generic Process Model

Consists of 5 general activities in software development :

1. Communication
2. Planning
3. Modeling
4. Construction
5. Deployment.

Dibahas di MK ANALISA & PERANCANGAN PL

Dibahas di MK ini

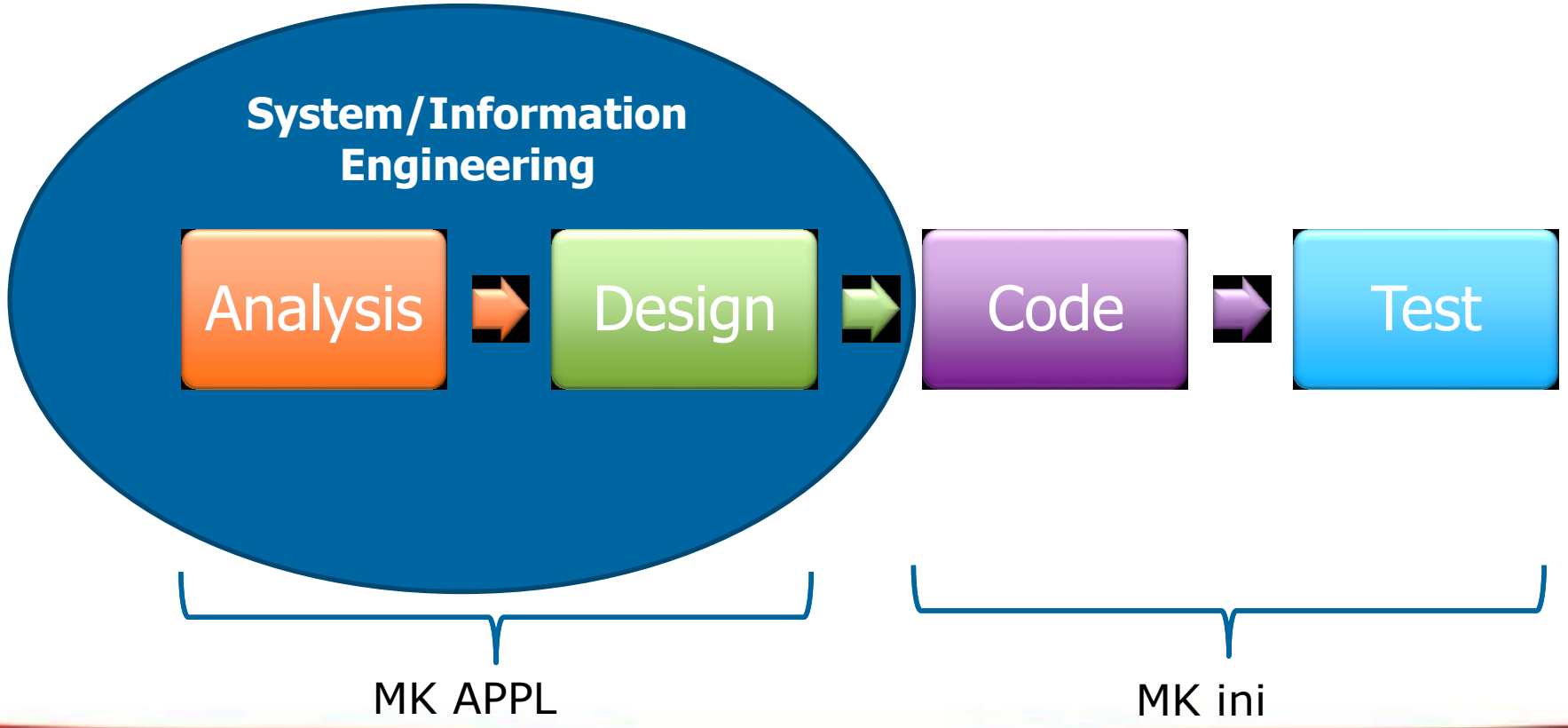
Process Flow

❶ Linear Process Model

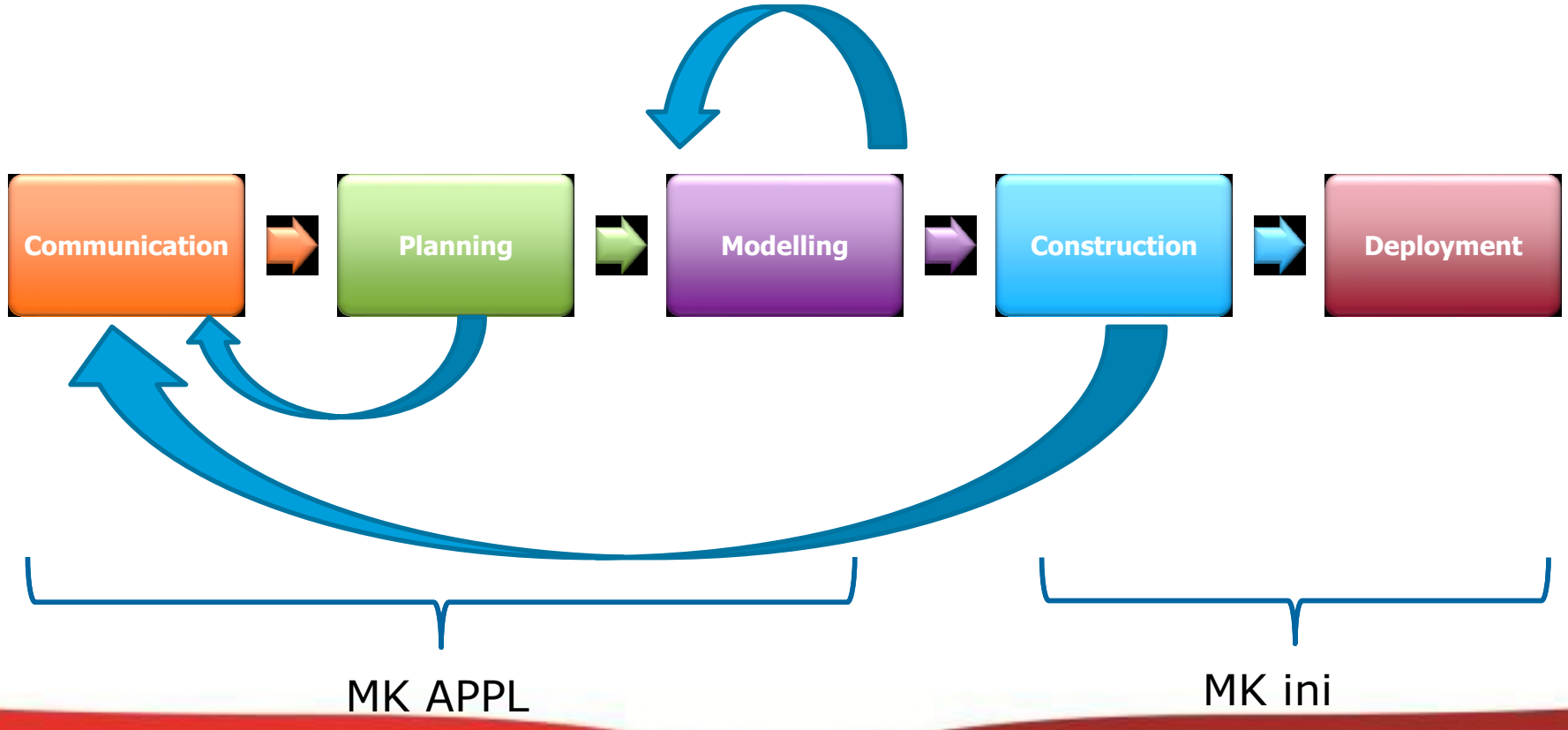
❷ Iterative Process Model

❸ Evolutionary Process Model

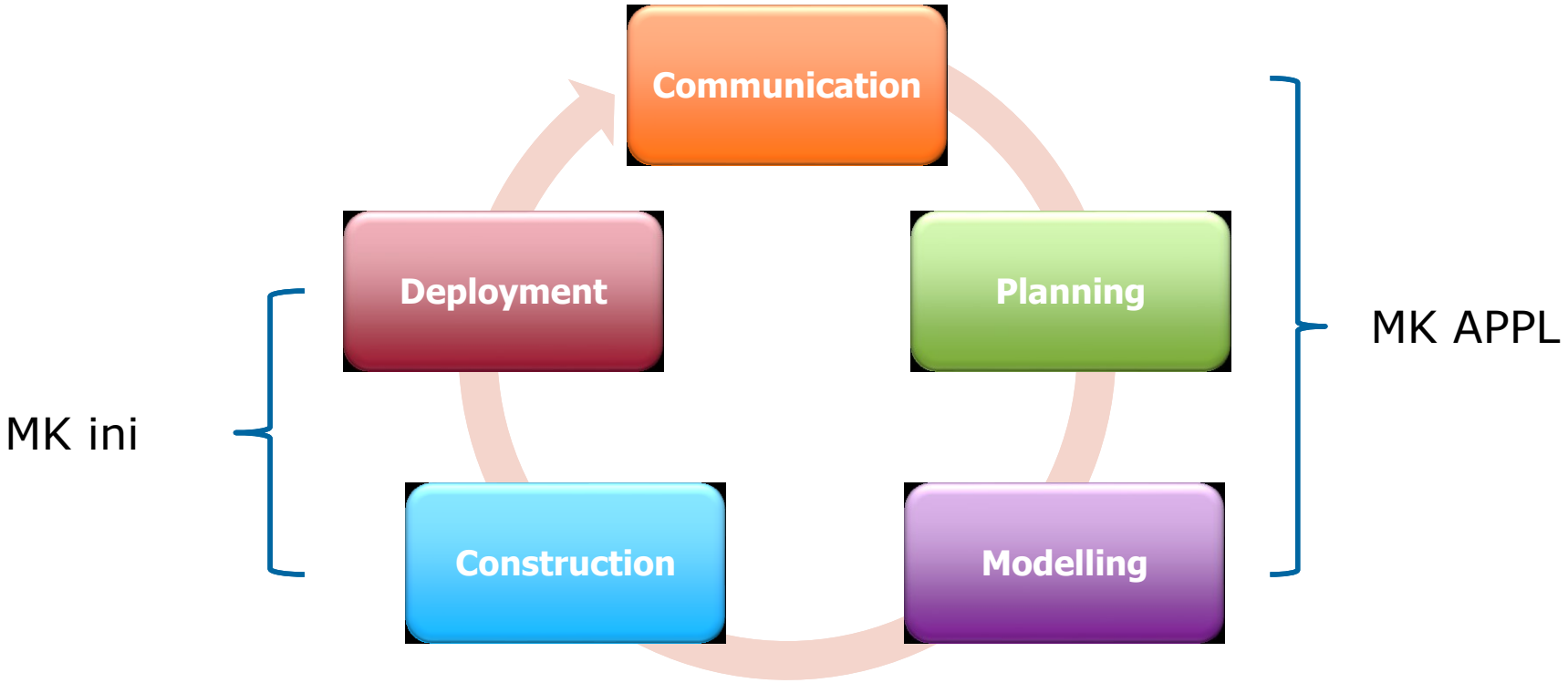
Linear Process Flow



Iterative Process Flow



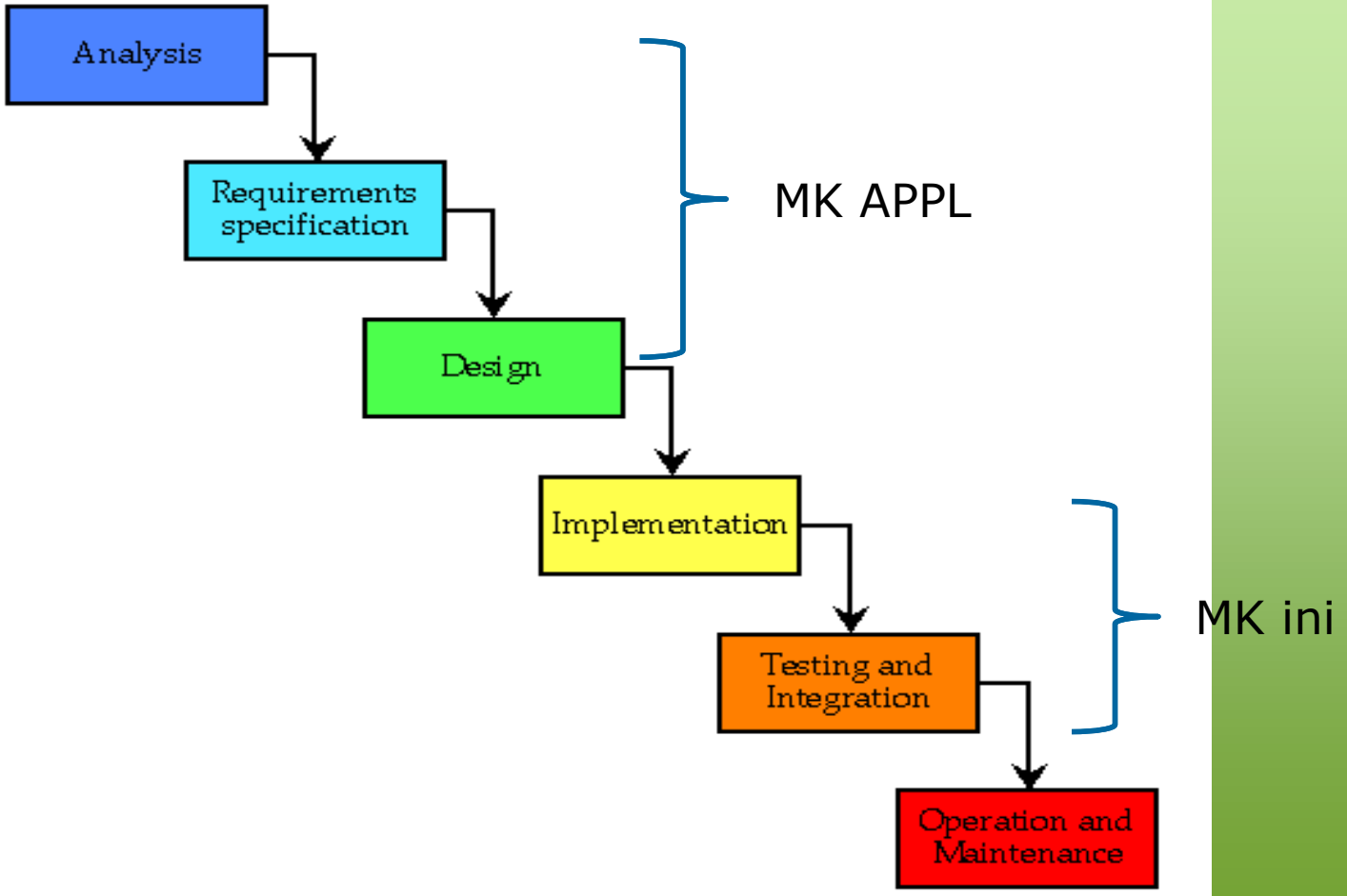
Evolutionary Process Flow



Process Model

- Waterfall Model
- V Shapes Model
- Incremental Model
- Evolutionary Model
  - Prototyping Model
  - Spiral Model
- Component Based Development
- The Unified Process
- Personal Software Process
- Team Software Process

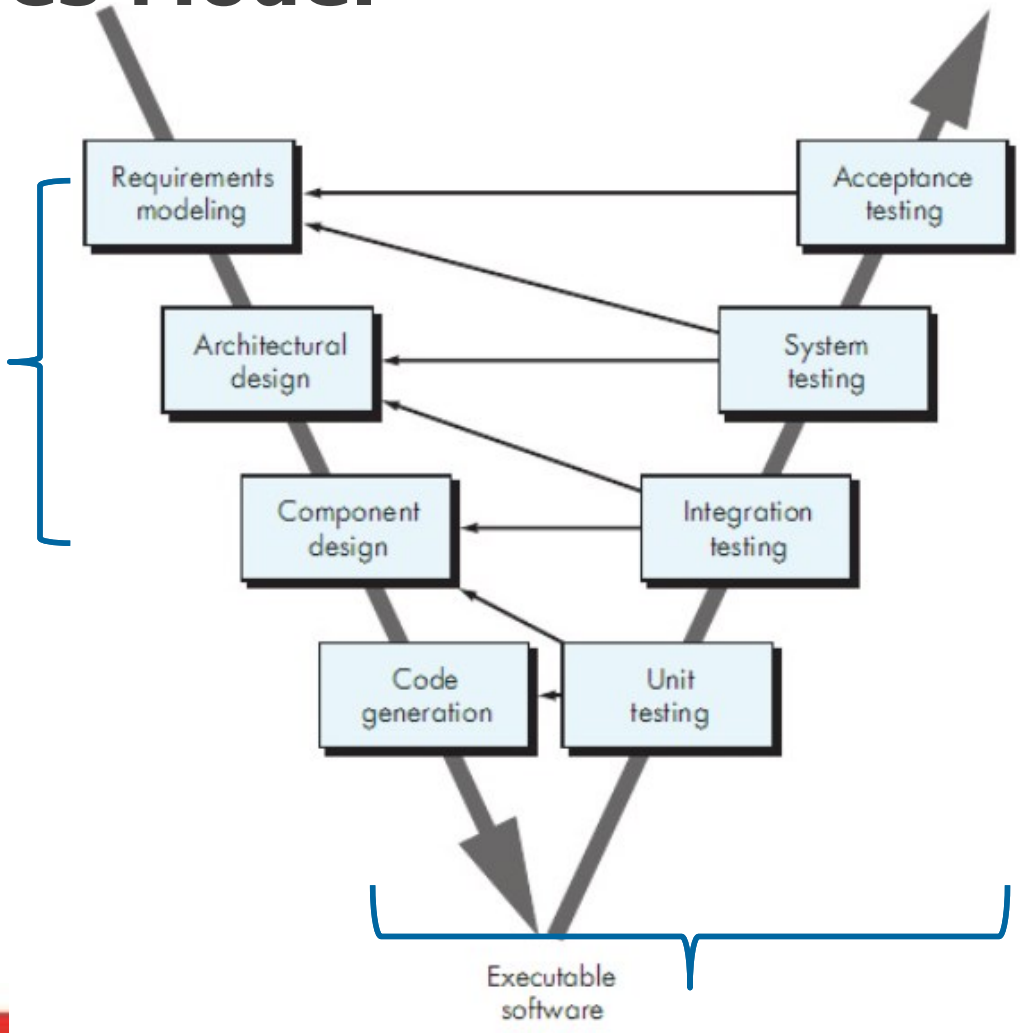
The Waterfall Model



V Shapes Model

- The V-Shaped life cycle is a sequential path of execution of processes
- Testing is emphasized in this model in every stages

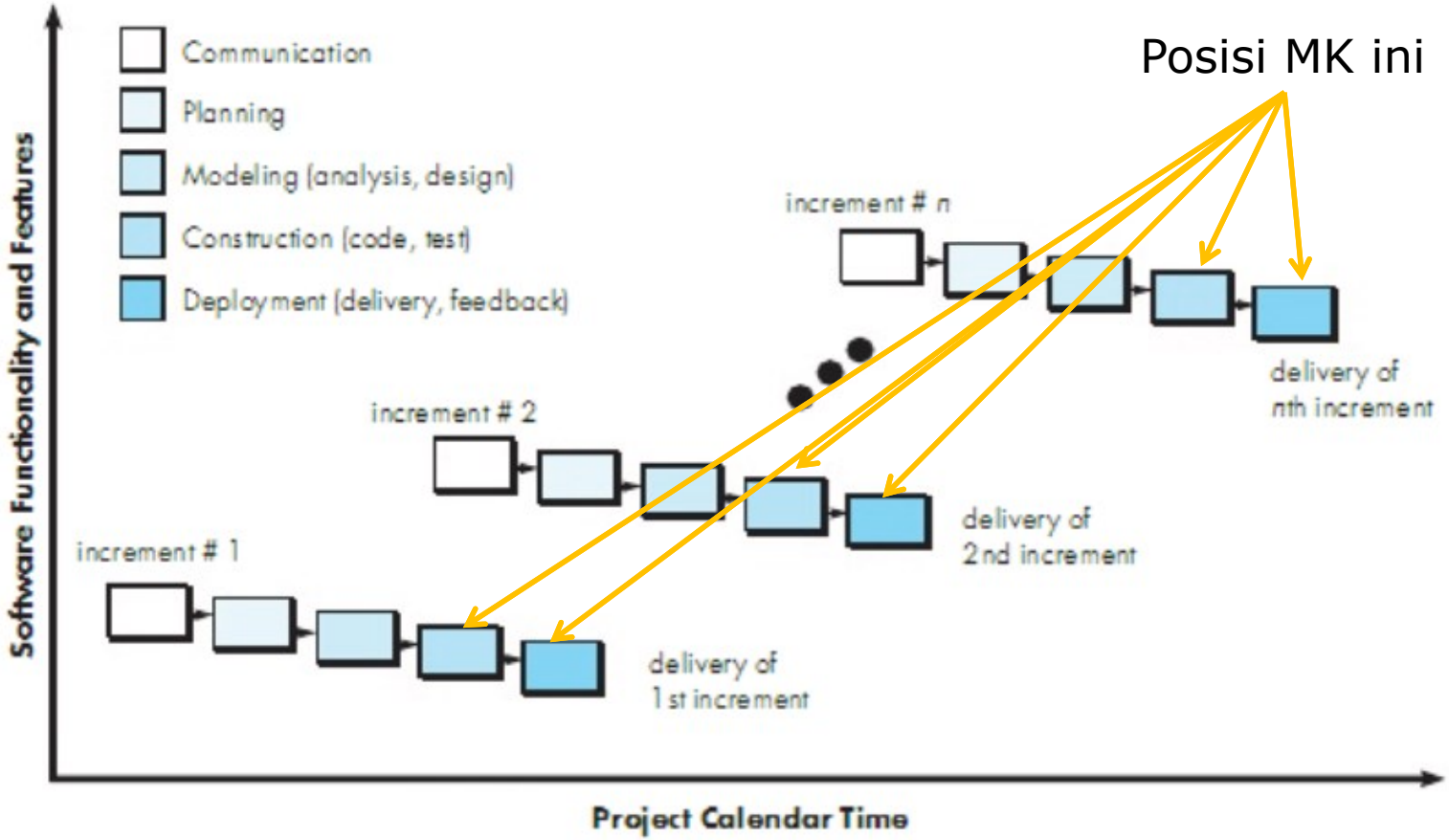
V Shapes Model



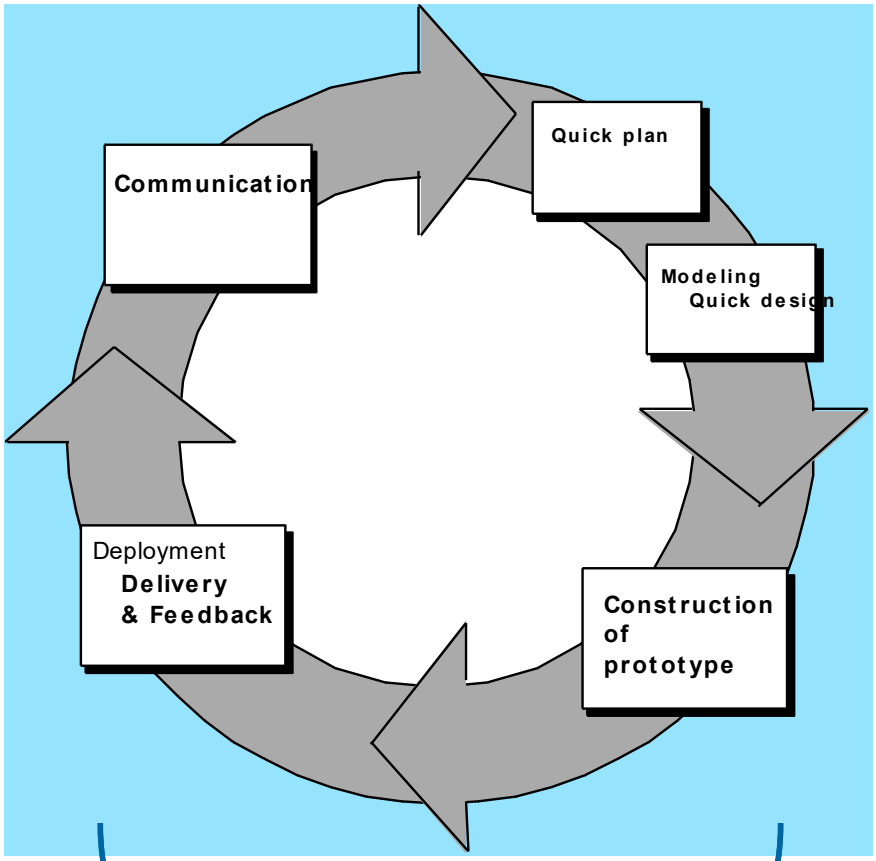
MK APPL

MK ini

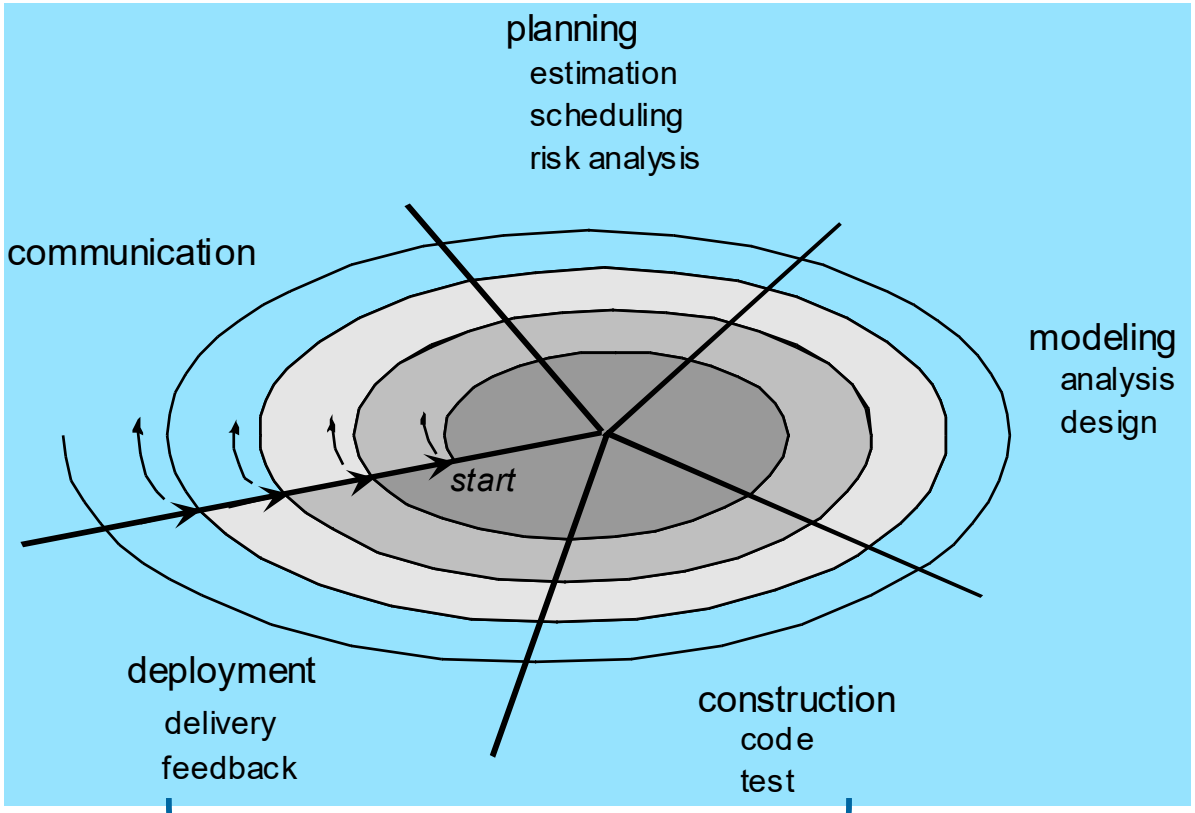
The Incremental Model (Cont')



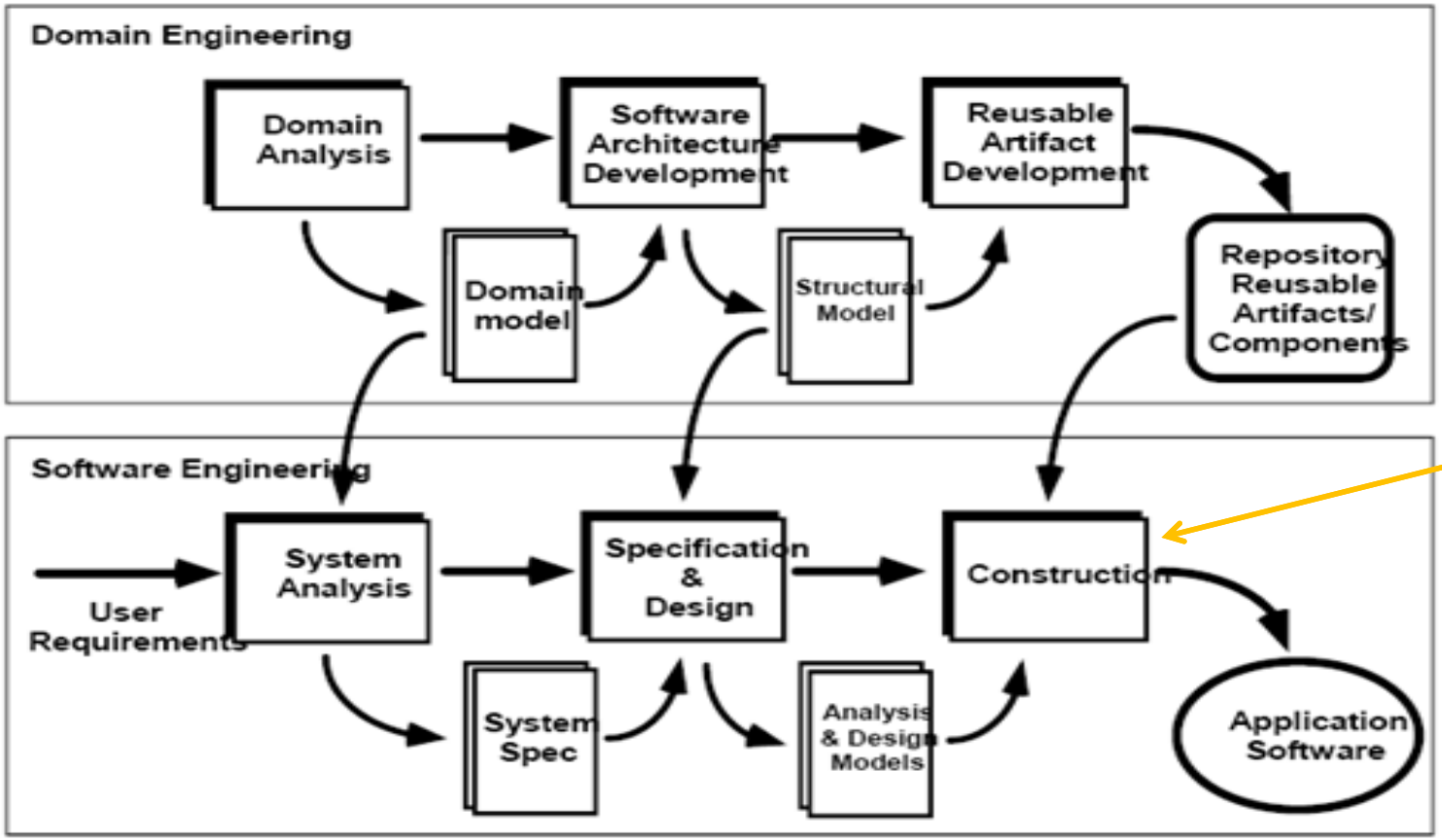
Evolutionary Model : Prototyping (Cont')



Evolutionary Models: The Spiral (Cont')



Component – based development



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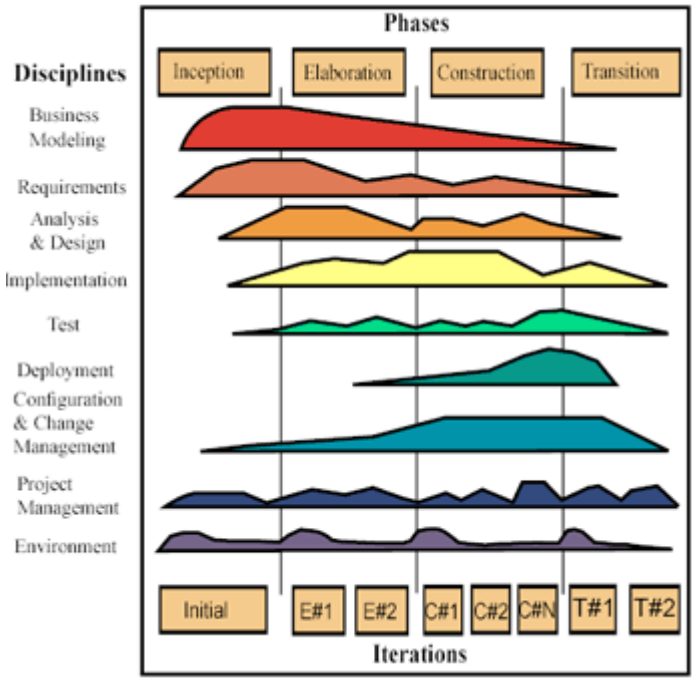
Gambar 2: Component-based Software Engineering

The Unified Process (Cont')

Posisi MK ini



Personal SW Process

Defines 5 activities :

- Planning
- High Level Design
- High Level Design Review
- **Development**
- Postmorteem

Team Software Process

Defines activities :

- Project launch
- High level design
- **Implementation**
- **Integration and test**
- Postmorteem

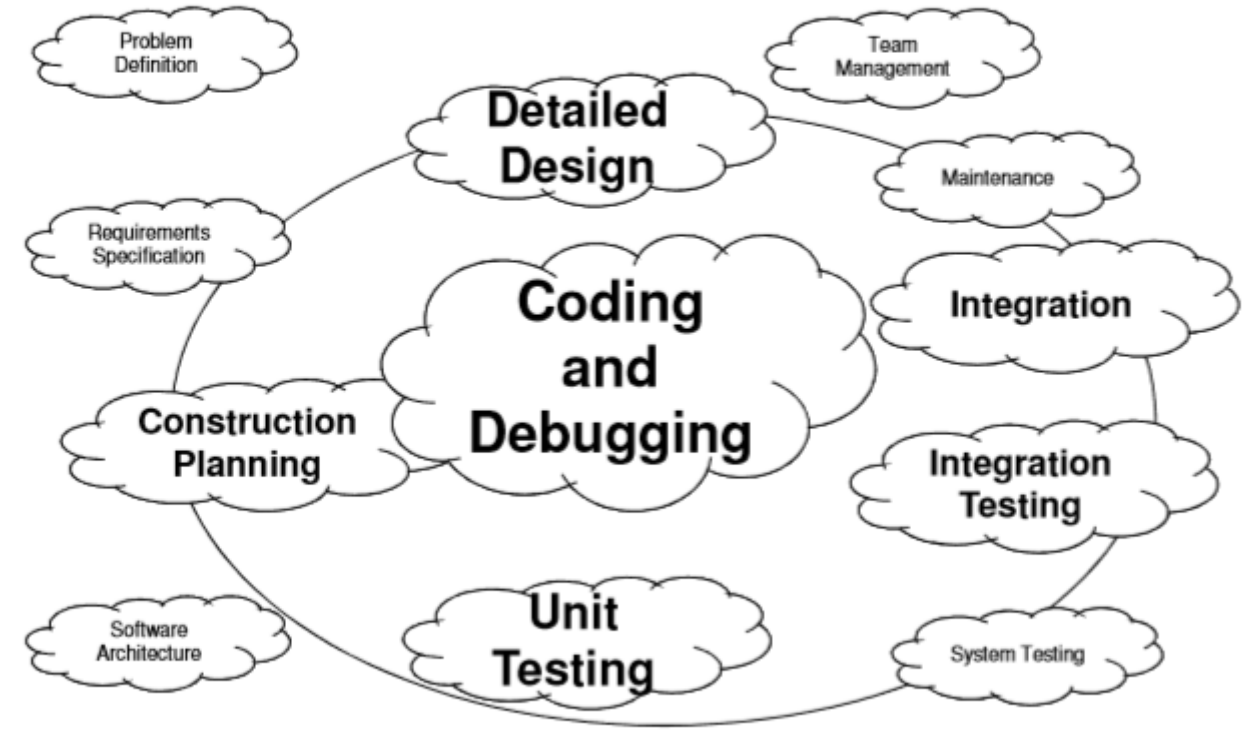
SUB BAHASAN 2

- Apa itu IMPLEMENTASI

Software Construction Definition

- Software construction is a fundamental act of software engineering: **the construction of working meaningful software through a combination of coding, validation, and testing (unit testing) by a programmer.** swebok95

What is Software Construction?



Software Construction, v2.0 IMVS, M. Kropp 5

Why is Software Construction Important?

Some Reasons

- Construction is a large part of software development

- Construction is the central activity in software development

- With a focus on construction, the individual programmer's productivity can improve enormously

- Construction's product, the source code, is often the only accurate description of the software

KEGIATAN IMPLEMENTASI

- Implementasi Basis Data

  dengan : Microsoft Access, MySQL, ORACLE, dsb

- Implementasi IMK

  dengan Netbeans, DreamWeaver, dsb

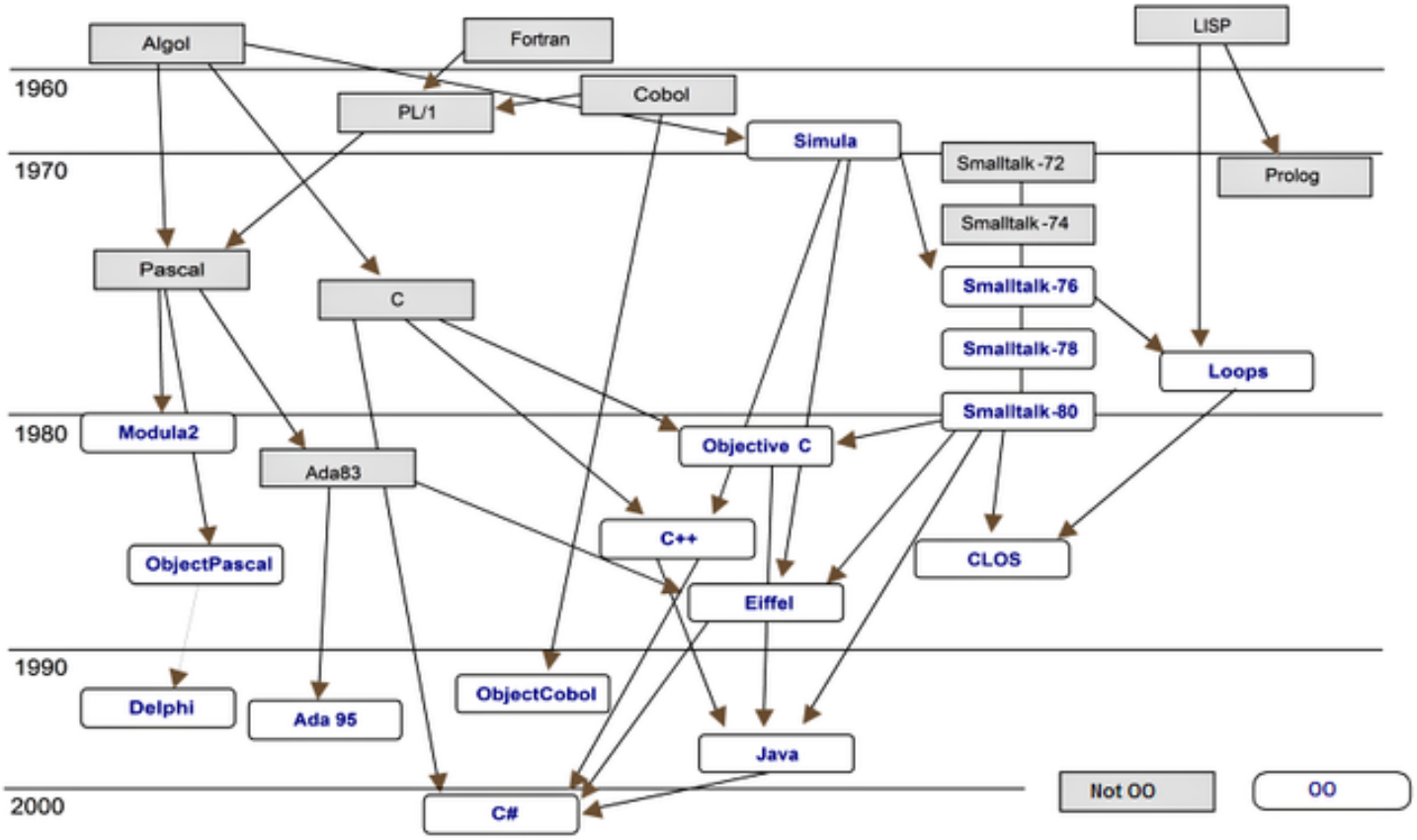
- Coding

  dengan C, C++, Java, C#, dsb

SUB BAHASAN 3

- **Bahasa Pemrograman Terstruktur atau OO**
- Terstruktur : BASIC, Pascal, C, COBOL, Fortran dsb
- OOP : C++, Java, C#, dsb

Programming Language Timeline



Rangking Bahasa Pemrograman

2015 Rank		Change	2014 Rank	Change	2013 Rank	Change	2012 Rank
1	Python	0	1	0	1	0	1
2	Java	0	2	0	2	0	2
3	C++	0	3	0	3	0	3
5	Ruby	-1	4	0	4	0	4
4	C#	2	6	2	8	1	9
7	C	0	7	-1	6	4	10
6	JavaScript	-1	5	2	7	-1	6
8	PHP	0	8	-3	5	0	5
9	Go	1	10	-1	9	-2	7
10	Perl	-1	9				
11	Haskell	0	11				
12	Scala	0	12	-1	11	0	11
13	Objective-C	0	13	-1	12	1	13
14	Bash	1	15				
15	Lua	1	16				
16	Clojure	-2	14	-4	10	-2	8
17	R*						
18	Tcl	-1	17	-4	13	-1	12
19	Visual Basic.NET*						

Top 10 Programming Language 2017

Top 10 Programming Languages	Python	C	Java	C++	C#	R	JavaScript	PHP	Go	Swift
Paradigm	Multi-paradigm: object-oriented, imperative, functional, procedural, reflective	Imperative (procedural), structured	Multi-paradigm: object-oriented (class-based), structured, imperative, generic, reflective, concurrent	Multi-paradigm: procedural, functional, object-oriented, generic	Multi-paradigm: structured, imperative, object-oriented, event-driven, task-driven, functional, generic, reflective, concurrent	Multi-paradigm: array, object-oriented, imperative, functional, procedural, reflective	Multi-paradigm: object-oriented (prototype-based), imperative, functional, event-driven	Imperative, object-oriented, procedural, reflective	Compiled, concurrent, imperative, structured	Multi-paradigm: protocol-oriented, object-oriented, functional, imperative, block-structured
Designed by	Guido van Rossum	Dennis Ritchie	James Gosling	Bjarne Stroustrup	Microsoft	Ross Ihaka and Robert Gentleman	Brendan Eich	Rasmus Lerdorf	Robert Griesemer, Rob Pike, Ken Thompson	Chris Lattner and Apple Inc
Developer	Python Software Foundation	Dennis Ritchie & Bell Labs (creators), ANSI X3J11 (ANSI C), ISO/IEC	Sun Microsystems (now owned by Oracle corporation)	Bell Labs	Microsoft	R Core Team	Netscape Communications Corporation, Mozilla Foundation, Ecma International	The PHP Development Team, Zend Technologies	Google Inc.	Apple Inc
First appeared	20 February 1991 (26 years ago)	1972 (45 years ago)	May 23 1995 (22 years ago)	1983 (34 years ago)	2000 (17 years ago)	August 1993 (24 years ago)	December 4, 1995 (21 years ago)	June 8, 1995 (22 years ago)	November 10, 2009 (7 years ago)	June 2, 2014 (3 years ago)
Typing discipline	Duck, dynamic, strong	Static, weak, manifest, nominal	Static, strong, safe, nominative, manifest	Static, nominative, partially inferred	Static, dynamic, strong, safe, nominative, partially inferred	Dynamic	Dynamic, duck	Dynamic, weak, gradual (as for PHP 7.0.0)	Strong, static, inferred, structural	Static, strong, inferred
Platform	Cross-platform	Cross-platform	Windows, Solaris, Linux, OS X	Linux, MacOS, Solaris	Common Language Infrastructure	UNIX platforms, Windows, MacOS	Cross-platform	Unix-like, Windows	Linux, macOS, FreeBSD, NetBSD, OpenBSD, Windows, Plan 9, DragonFly BSD, Solaris	Darwin, Linux, FreeBSD
Filename extensions	.py, .pyc, .pyo (prior to 3.5), .pyw, .pyz (since 3.5)	.c, .h	.java, .class, .jar	.cc, .cpp, .C, c++, .h, .hh, .hpp, .hxx, .h++	.cs	.r, .R, .RData, .rds, .rda	.js	.php, .phtml, .php3, .php4, .php5, .php7, .phps	.go	.swift

SUB BAHASAN 4

- Memilih Lingkungan Pengkodean
- Ref : https://www.keycdn.com/blog/best-ide/

1. Microsoft Visual Studio

Microsoft Visual Studio is a premium IDE ranging in price from$699 – $2,900 depending on the edition and licensing. The many editions of this IDE are capable of creating all types of programs ranging from web applications to mobile apps to video games. This series of software includes tons of tools for compatibility testing so that you can see how your apps run on more than **300 devices and browsers**. Thanks to its flexibility, Visual Studio is a great tool for both students and professionals.

Languages Supported: ASP.NET, DHTML, JavaScript, JScript, Visual Basic, Visual C#, Visual C++, Visual F#, XAML and more

2. NetBeans

Netbeans is a free and open-source IDE. Ideal for editing existing projects or starting from scratch, NetBeans boasts a simple drag-and-drop interface that comes with a myriad of convenient project templates. It is primarily used to develop Java applications, but you can download bundles that support other languages.

Languages Supported: C, C++, C++11, Fortan, HTML 5, Java, PHP and more

5. Eclipse

Eclipse is a free and flexible open source editor useful for beginners and pros alike. Originally a Java environment, Eclipse now has a wide range of capabilities thanks to a large number of plug-ins and extensions. In addition to debugging tools and Git/CVS support, the standard edition of Eclipse comes with Java and Plugin Development Tooling. If that's not enough for you, there's plenty of other packages to choose from that include tools for charting, modeling, reporting, testing and building GUIs. The Eclipse Marketplace Client gives users access to a treasure trove of plugins and information supplied by an expanding community of developers.

Languages Supported: C, C++, Java, Perl, PHP, Python, Ruby and more

Finding the Best IDE for Your Needs

As you can see, the best IDE for you depends on your operating system, your programming language of choice and which platforms you wish to develop for. Finding the right fit is really an ongoing process. Your options are practically limitless, so it may be helpful to make a list of your preferences and then searching for the IDE that most closely matches your needs. While every developer has their favorite software, don't be afraid to branch out as the world of IDEs is always expanding.

SUB BAHASAN 5

- GitHub
- Pelajari : https://guides.github.com

TUGAS I

- KELOMPOK TUBES IMPAL = APPL
- BUAT AKUN GITHUB ATAU GDRIVE
- SIMPAN TUBES APPL KELOMPOK ANDA DI GITHUB ATAU GDRIVE

References

- Roger S. Pressman. *Software Engineering*, 8th edition. 2014
- Ian Sommerville. *Software Engineering*, 9th edition. 2011.

THANK YOU