Basic Programming

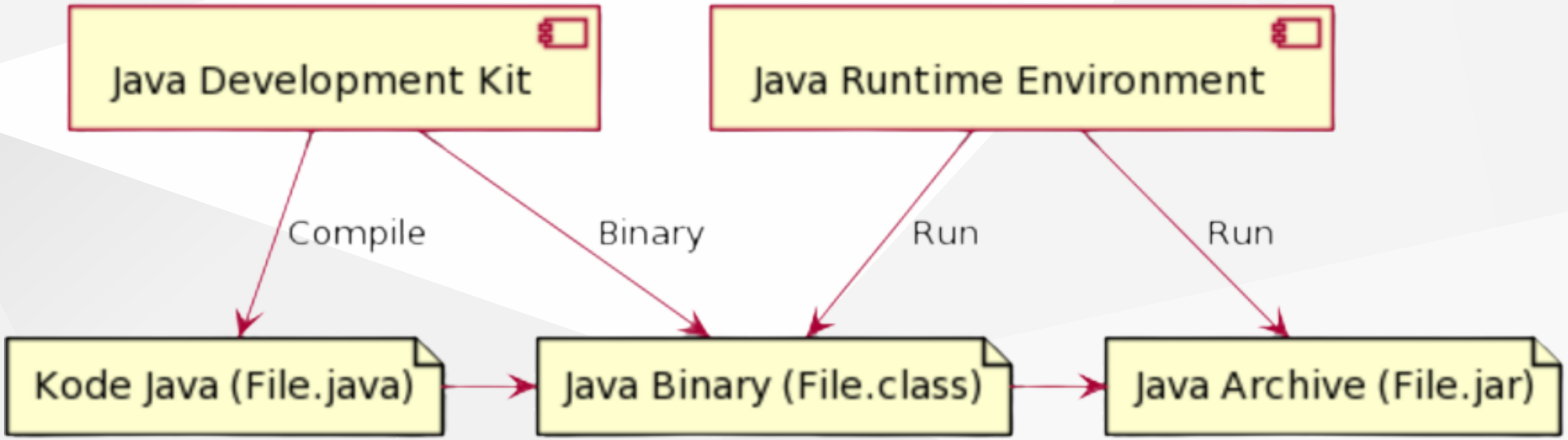
Rawlabs Academy

Tools and IDE

- Java Development Kit (JDK)

- Integrated Development Environment (IDE)

Java Development Process



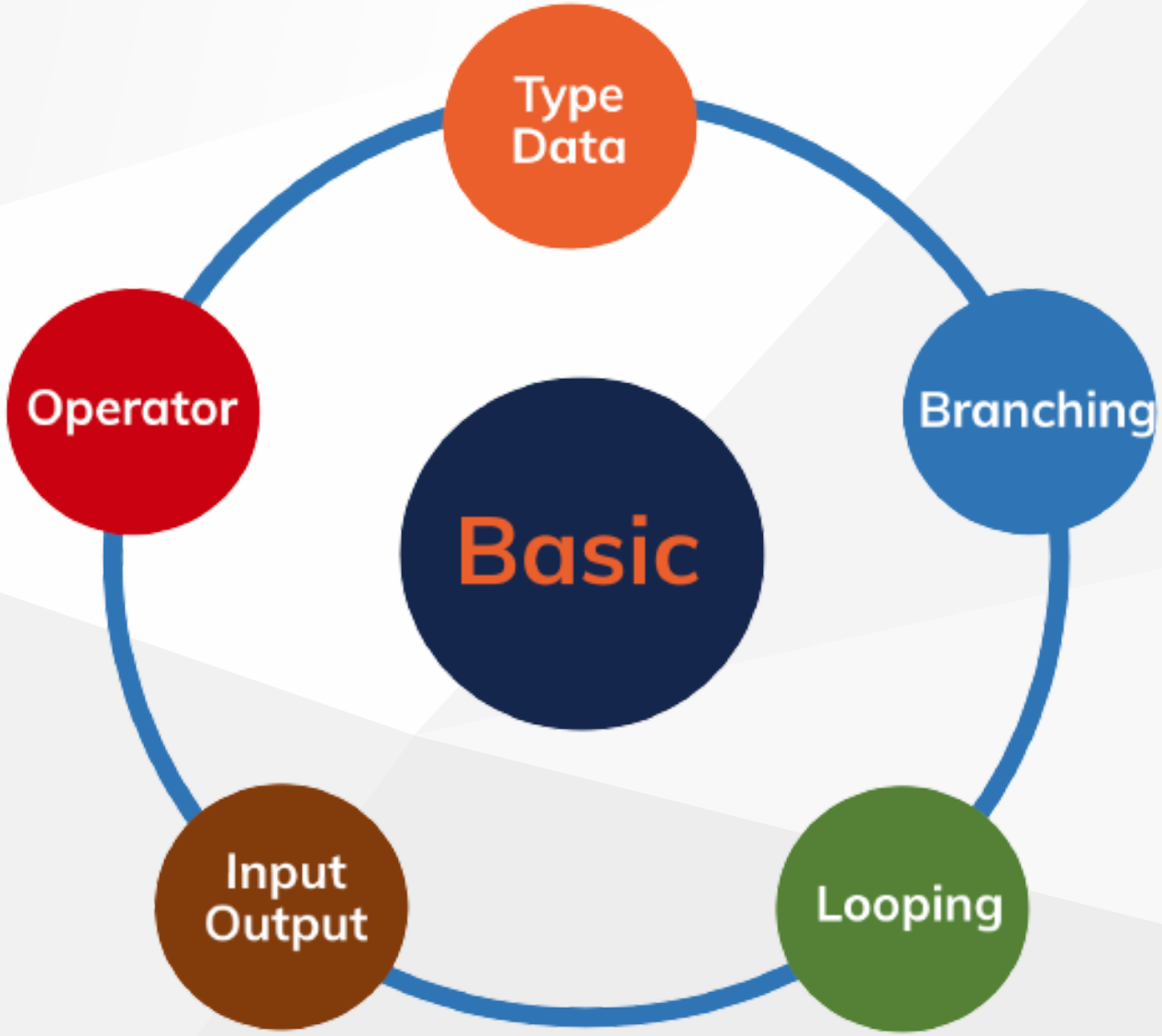
Basic Programming

Hello World!

```
public class Main {

    public static void main(String[] args) {
        System.out.println("Hello World!");
    }

}
```


Type
Data
Operator
Branching
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Input
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Looping

Data Type (Integer)

Data Type	Min	Max	Size	Default
byte	-128	127	1 byte	0
short	-32,768	32,767	2 bytes	0
int	-2,147,483,648	-2,147,483,647	4 bytes	0
long	-9,223,372,036, 854,755,808	-9,223,372,036, 854,755,807	8 bytes	0

Data Type (Decimal)

Data Type	Min	Max	Size	Default
float	3.4e-038	34.e+038	4 bytes	0
double	1.7e-308	1.7e+308	8 bytes	0

Variable

Declaration

- `data_type variable_name = value`

Example

```
int myInt;
long balance = 1000001;
String name = "Maverick";
double value = 1.71;

int age = 10;
byte ageAsByte = (byte) age;
```

Primitive & Non Primitive

Primitive default value is **0** but, **non primitive** is allow **nullable**;

Data Type Primitve	Data Type Non Primitive
byte	Byte
short	Short
int	Integer
long	Long
float	Float
double	Double
char	Char
boolean	Boolean

Array

Array Example

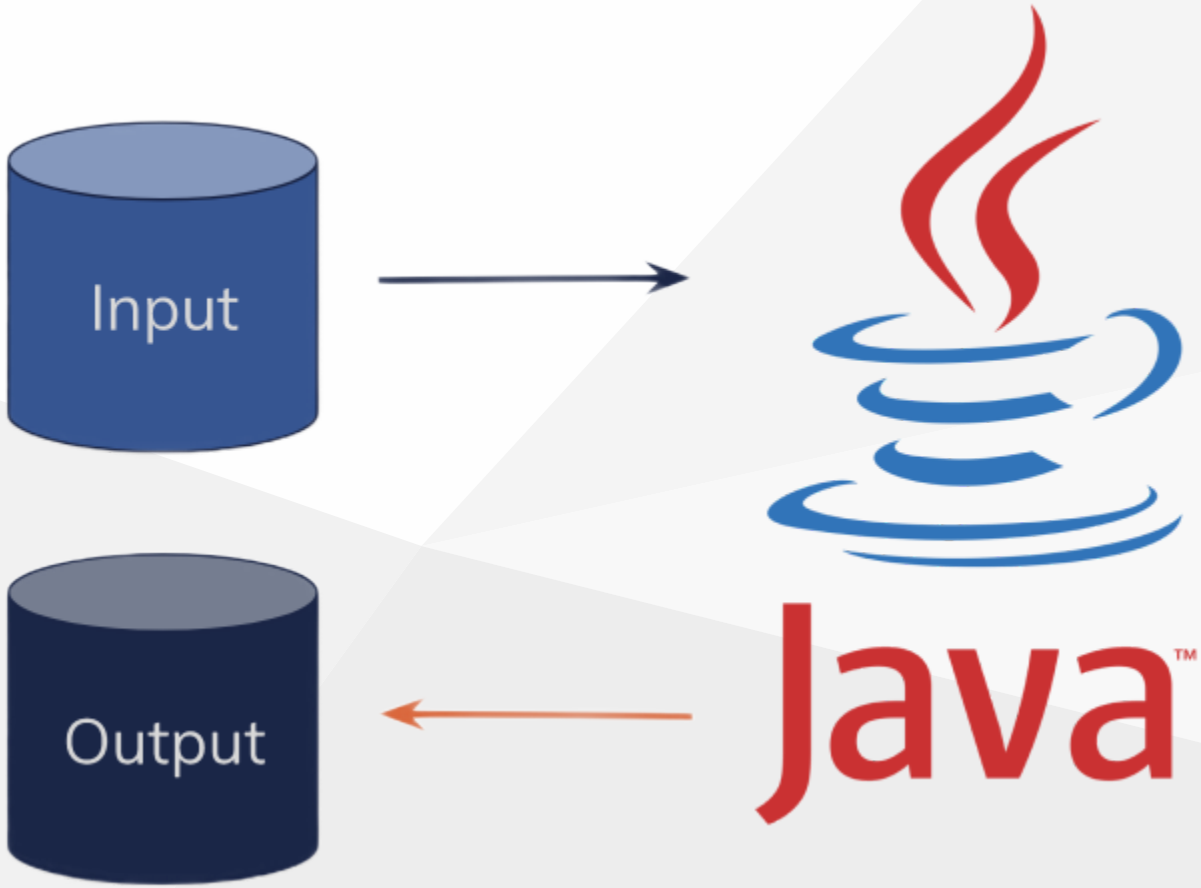
```
char[] rawlabs = new char[] {'r','a','w','l','a','b','s'};

char[] rlabs = new char[7];
rlabs[0] = 'r';
rlabs[1] = 'a';
rlabs[2] = 'w';
rlabs[3] = 'l';
rlabs[4] = 'a';
rlabs[5] = 'b';
rlabs[6] = 's';
```

Operator

Operator	Symbol
Assignment	=
Arithmetic	+ - * / %
Unary	+ - ++ -- !
Equality and Relational	== != > >= < <=
Conditional	&& ||

Input & Output



Input

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.print("Enter an integer number: ");

        int number = in.nextInt();
        System.out.println("You have entered " + number);

        // Closing the input
        in.close();
    }
}
```

Output

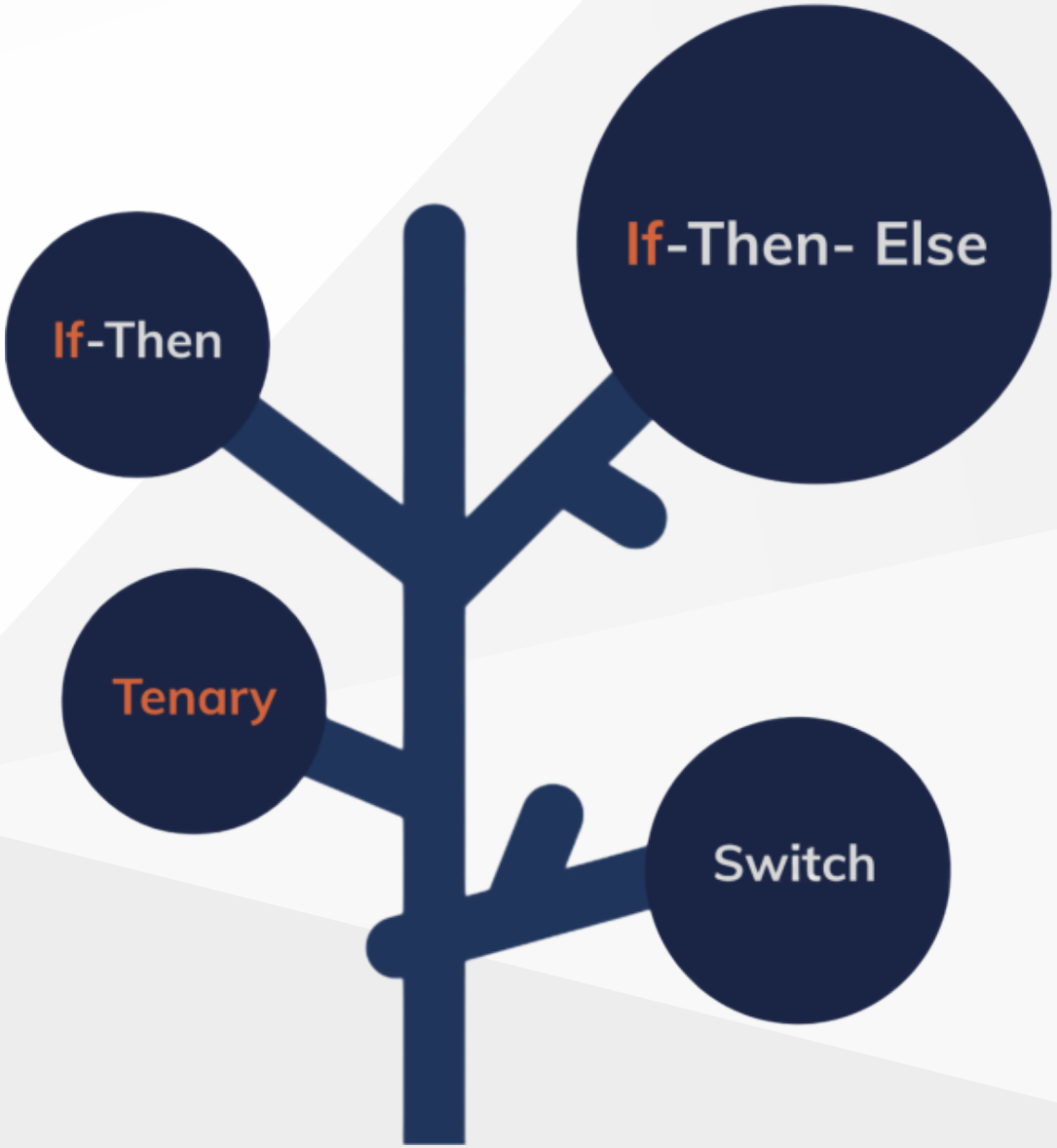
```
public class Main {

    public static void main(String[] args) {
        Double number = 1.67;

        System.out.println(5);
        System.out.println(number);
    }

}
```

Branching



If-Else

```
public static void main(String[] args) {
    String userRole = "ADMIN";
    if (userRole == "ADMIN") {
        System.out.println("Role: ADMIN");
    } else {
        System.out.prinln("Role: USER");
    }

    boolean valid = true;
    if (!valid) {
        System.out.println("Invalid!");
    }
}
```

Switch

```
public static void main(String[] args) {
    switch(userRole) {
        case "ADMIN":
            token = "tokenAdmin";
            break;
        case "USER":
            token = "tokenUser";
            break;
        default:
            token = "Unauthorized";
            break;
    }
}
```

Looping

For Loop

```
for (int i = 0; i < 10; i++) {
    System.out.println("Number: " + i);
}
```

While Loop

```
int i = 0;
while(i < 10) {
    System.out.println("Number: " + i);
    i++;
}
```

Do-While Loop

```
int i = 0;
do {
    System.out.println("Number: " + i);
    i++;
} while(i < 10);
```

Foreach Loop

```
String names = {"Calvin", "Maverick", "Joe", "John"}
for (String name : names) {
    System.out.println("My name is: " + name);
}
```

Break and Continue

```
for (int i = 0; i < 10; i++) {
    if (i == 3 || i == 5) {
        System.out.println("I will continue while looping on number: " + i);
        continue;
    }

    if (i == 7) {
        System.out.println("I will stop here on number: " + i);
        break;
    }
}
```

Method

```
public class Main {

    public static void main(String[] args) {
        System.out.println("Call the method in this line below");
        add(2, 3);
    }

    public static void add(int a, int b) {
        System.out.println(a + b);
    }

}
```

Method with Return

```
public class Main {

    public static void main(String[] args) {
        System.out.println("Call the method in this line below");
        System.out.println(add(2, 3));
    }

    public static int add(int a, int b) {
        return a + b;
    }

}
```

Method with Argument

```
public class Main {
    public static void main(String[] args) {
        System.out.println("Call the method in this line below");
        System.out.println(add(2, 3, 4, 5, 6));
    }

    public static int add(int... values) {
        int result = 0;
        for (int v : values) {
            result += v;
        }
        return result;
    }
}
```

Comment

```java
/**
*
* Method to add 2 numbers
* You can write a multiple line of comments
*
*/
public static int add(int a, int b) {
    // Return add of 2 numbers
    return a + b;
}
```

Task 1

Counts the number of characters in the form of vowels, consonants and total characters from the sentence *"Rahwlabs Academy"*.

Input:
Rawlabs Academy

Output:
Vowels: 5
Consonants: 9
Total: 14

Task 2

Palindrome is a word, number, phrase, or other sequence of symbols that reads the same backwards as forwards. Write a program to detect whether a string is a palindrome or not.

Input: **katak**
Output: Palindrome

Input: **mister**
Output: Not Palindrome

Input: **kasur rusak**
Output: Palindrome