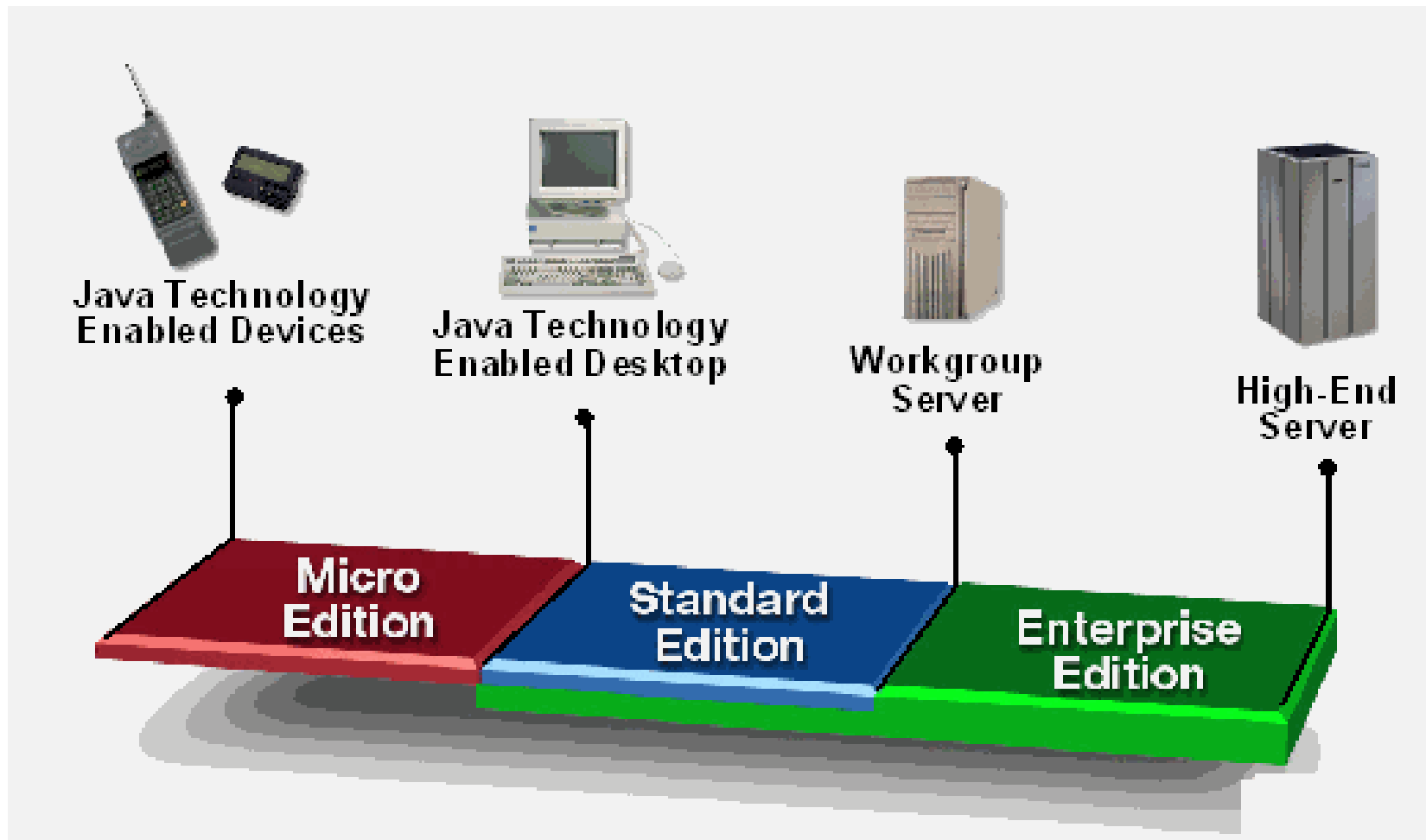




- **Java** is an object-oriented applications programming language developed by Sun Microsystems in the early 1990s.
- **Java** language is currently owned by Oracle Corporation
- **Java** was earlier known as “Oak”.
- **Java** itself derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities.

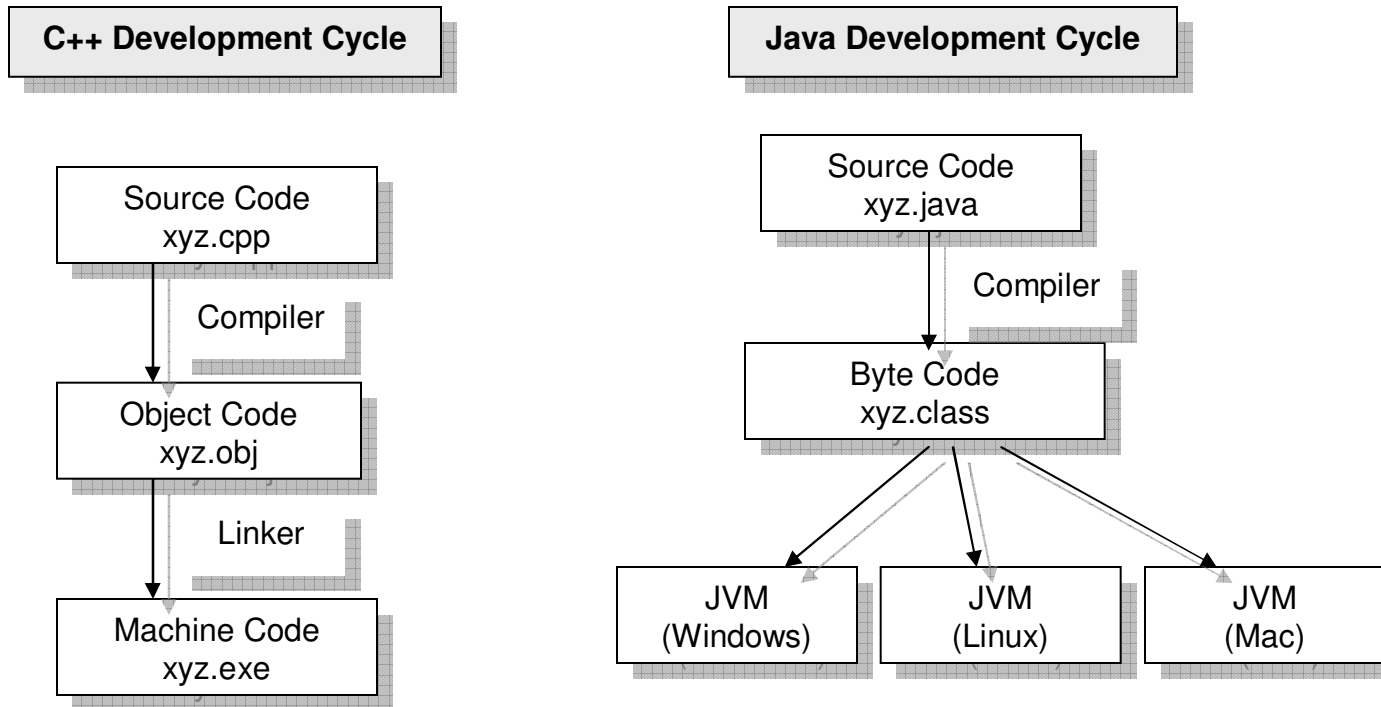
# Java Editions



# Features of Java

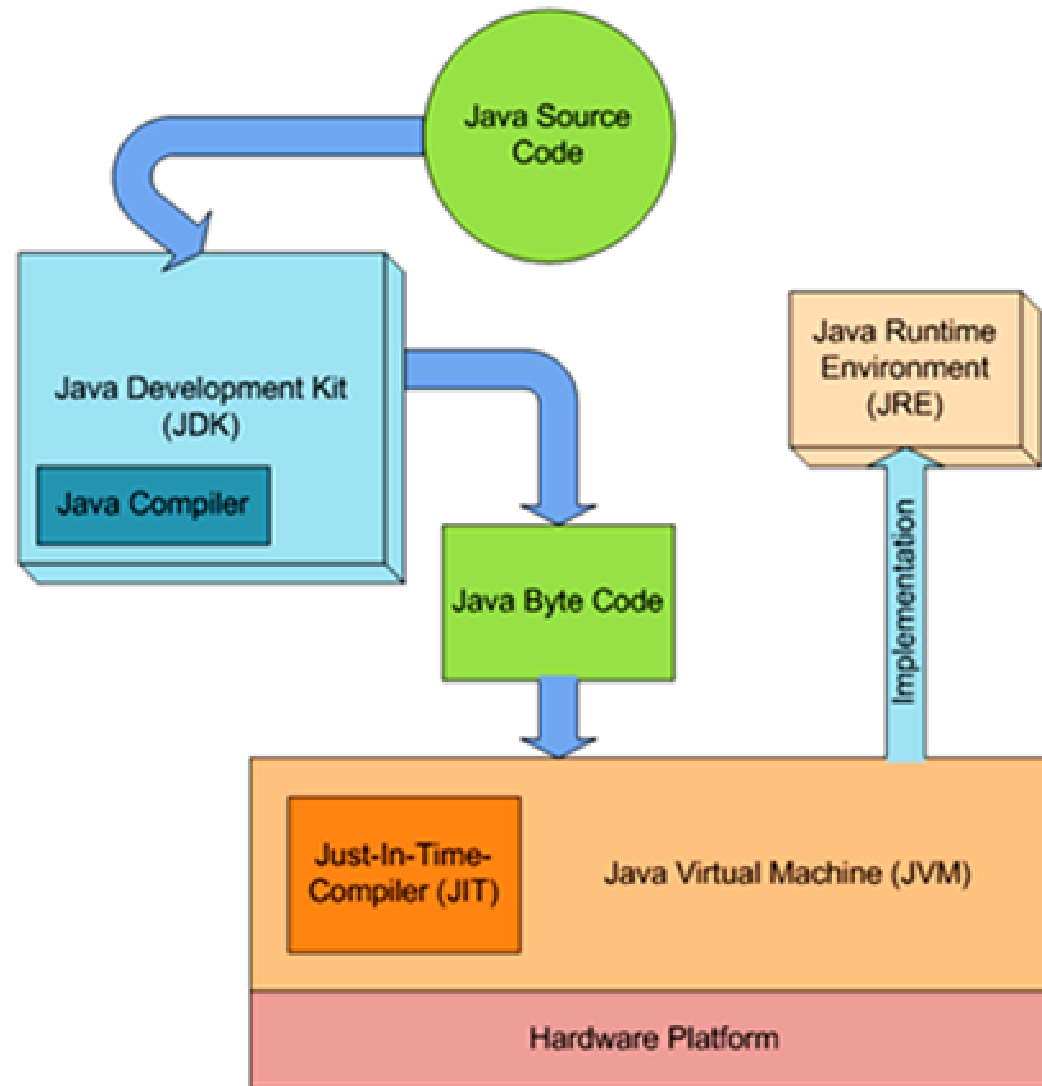
- **Platform Independence**  
( *Write-Once-Run-Anywhere* )
- **Object Oriented**
- **Compiler/Interpreter Combo**
- **Robust**
- **Automatic Memory Management**
- **Security**
- **Dynamic Binding**
- **Good Performance**
- **Multi-Threading**
- **Built-in Networking**

# Development Cycle



JVM : Java Virtual Machine

**Note** : Java Source Code file and Byte Code file may or may not have same file name



# First Java Program

```
class first
{
    public static void main(String s[])
    {
        System.out.print("hello world");
    }
}
```

- Save it with some file name with extension “java” e.g. abc.java
- Compile it as follows  
**javac abc.java**
- Run byte code as follows  
**java first**

# Primitive Data Types

Data Type	Memory	Range
<b><u>INTEGER</u></b>		
long	64-bits	$-2^{64}$ to $+2^{64} - 1$
int	32-bits	$-2^{32}$ to $+2^{32} - 1$
short	16-bits	$-2^{16}$ to $+2^{16} - 1$
byte	8-bits	$-2^8$ to $+2^8 - 1$
<b><u>FLOATING POINT</u></b>		
double	64-bits	1.7e-308 to 1.7e +308
float	32-bits	3.4e-038 to 3.4 e+038
<b><u>CHARACTERS</u></b>		
char	<u>16-bits</u>	0 to 65535
<b><u>BOOLEANS</u></b>		
boolean		true or false



# Data Types ( default values )

Data Type	Default Value (for fields)
byte	0
short	0
int	0
long	0L
float	0.0f
double	0.0
char	'\u0000'
boolean	false

# Java Operators

Arithmetic	Increment/ Decrement	Assignment	Logical	Comparison	Bitwise
+	++	=		<b>x &lt; y</b>	<b>~x</b>
-	--	+=, -=, /=, %=	<b>&amp;&amp;</b>	<b>x &lt;= y</b>	<b>x &amp; y</b>
*		&=,  =, ^=	<b>  </b>	<b>x &gt; y</b>	<b>x   y</b>
/		<<=, >>=, <b>&gt;&gt;&gt;=</b>	<b>!</b>	<b>x &gt; y</b>	<b>x ^ y</b>
%				<b>x &gt;= y</b>	<b>x &lt;&lt; y</b>
-(unary minus)				<b>x == y</b>	<b>x &gt;&gt; y</b>
+(unary plus)				<b>x != y</b>	<b>x &gt;&gt;&gt; y</b>

# Control Statements

## Conditional if-else Statement:

```
if (condition) {  
    // statement sequence  
} else {  
    // other statement sequence  
}
```

## Repetitive Loop Statements:

### *for* loop

```
for (i = 0; i < 10; i++) {  
    //statement sequence  
}
```

### Enhanced *for* loop (added with Java 5.0)

```
public class bitx  
{  
    public static void main(String s[])  
    {  
        x[]={ 10,23,45,67,88};  
        for(int a:x)  
        {  
            System.out.println(a);  
        }  
    }  
}
```

## *while* loops

```
while (i < 5) {  
    //statement sequence  
}
```

## *do/while* loops

```
do{  
    //statement sequence  
} while (condition);  
.
```

- *switch* statement

```
switch (i) {  
    case 1:  
        // statement sequences  
        break;  
    case 2:  
        // statement sequences  
        break;  
    default:  
        // default statement sequences  
}
```