

# Control Flow 1

# J5

Control flow  
if-then-else  
switch

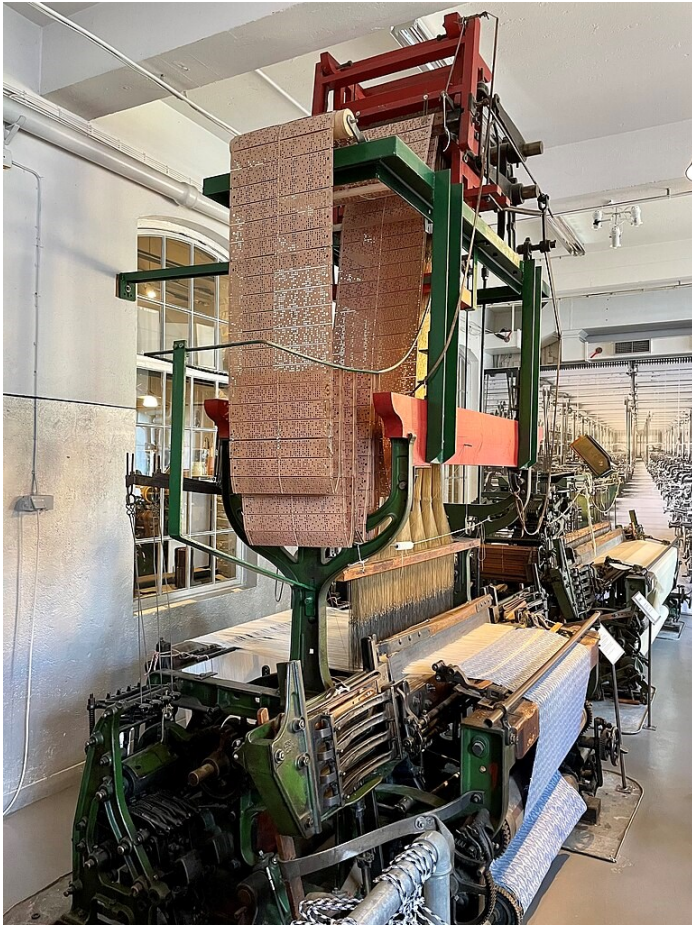


Image: NASA – Public Domain

# Control Flow

Control flow statements allow the execution of the program to deviate from a strictly sequential execution of statements.

Imperative programming: sequence, **selection**, *iteration*.

# if-then & if-then-else statements

```
boolean x = false;  
int i = 5;  
if ( x )  
    i = 3; // Conditionally executed if x == true  
else  
    i = 4; // Optional, conditionally executed  
           // if x == false  
System.out.println(i);
```



# if-then & if-then-else statements

```
boolean x = false;  
int i = 5;  
if ( x ) {  
    i = 3; // Conditionally executed if x == true  
} else {  
    i = 4; // Optional, conditionally executed  
        // if x == false  
}  
System.out.println(i);
```

Use braces to make more clear what is and isn't conditional

# The switch statement

```
int i = ... ;
```

```
switch(i) { Execution jumps to the first matching case
```

```
case 0:
```

```
case 1:
```

```
System.out.println("0 or 1");
```

```
case 2:
```

```
System.out.println("0 or 1 or 2");
```

```
break; Execution continues to the end of the switch statement
```

```
default: unless a break statement is encountered
```

```
System.out.println("Any other value");
```

```
}
```

# Conditional Expressions

- Conditional Operator

```
int i = (x < 0 ? x * -1 : x);
```

Condition Then-Expression Else-Expression

- Switch Expression

```
int i = switch (x) {  
    case 0 -> 5;    ‘->’ instead of ‘:’  
    case 1 -> { int y = x * x; yield y + 1; }  
    default -> 0;    “value” of block  
};    Needs complete coverage
```