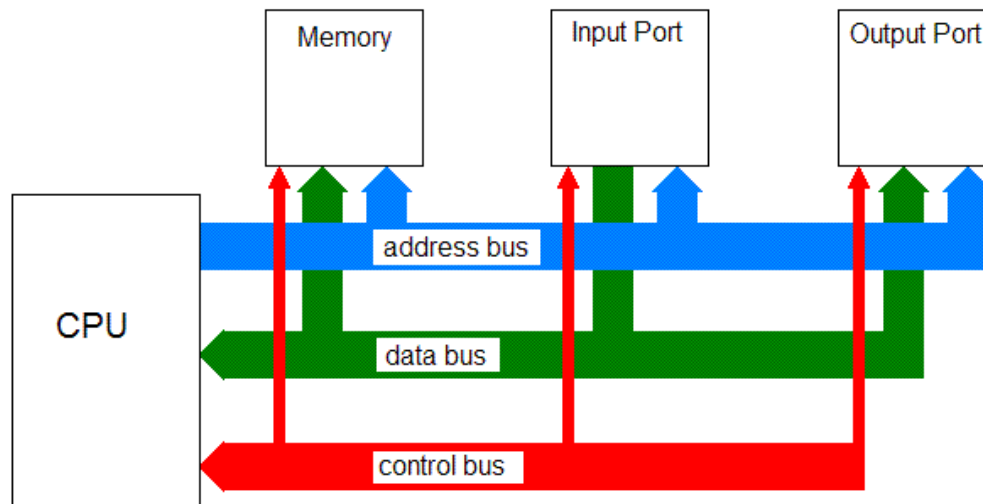


PKG 03: THE COMPUTER and ELEMENTARY PROGRAMMING 2

THE COMPUTER, KEY COMPONENTS

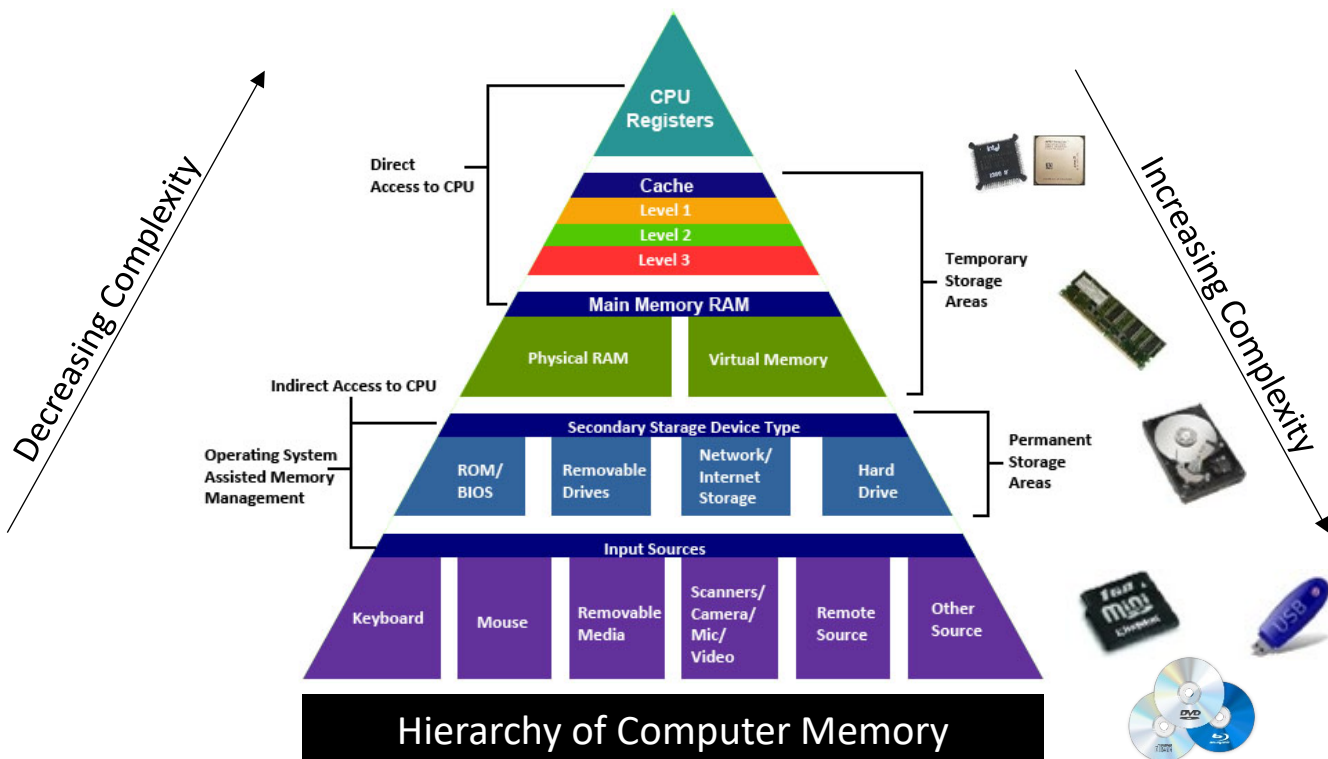


BUS

- A subsystem interconnecting a computer's components.
- Data and power travel along the bus.

CPU

- Central Processing Unit or the brain of the computer.
- Receives instructions from memory and execute them.
- Control Unit: controls and coordinates the other components.
- Arithmetic/Logic Unit: numeric operations and logical operations.
- Internal clock => electronic pulses at constant rate.



```

65
66 public class SpecialChracters {
67
68     public static void main(String[] args) {
69         System.out.println("Single quotation mark: \'");
70         System.out.println("Double quotation mark: \"");
71         System.out.println("Backslash: \\");
72         System.out.println("Tab:a \tb");           // \t
73         System.out.println("Backspace:a \bb");      // \b
74         System.out.println("Carriage return:a \rb");// \r
75         System.out.println("Formfeed:a \fb");       // \f
76         System.out.println("Newline:a \nb");        // \n
77
78         System.out.println("A box:");
79         System.out.println("-----");
80         System.out.println("| \t \t |");
81         System.out.println("| \t \t |");
82         System.out.println("| \t \t |");
83         System.out.println("| \t \t |");
84         System.out.println("-----");
85
86         System.out.print("print");
87         System.out.print("\nprint");
88         System.out.println("println");
89     }
90 }
91

```

```

Single quotation mark: '
Double quotation mark: "
Backslash: \
Tab:a    b
Backspace:ab
b
Formfeed:a  b
Newline:a
b
A box:
-----
|         |
|         |
|         |
|         |
|         |
-----
print
printprintln

```

```

92
93 TERMS:
94 - variable is a symbol representing a value stored in the computer's memory.
95 - data type is the kind of data or value stored in a variable.
96 - primitive data types or fundamental types are integers, real numbers, characters,
97   and Boolean types.
98 - floating-point numbers are real numbers with a decimal point
99

```

```

100
101
102 public class ComputeArea {
103
104     public static void main(String[] args) {
105         double radius; // Declare radius
106         double area;   // Declare area
107
108         // Assign a radius
109         radius = 20;    // New value is radius
110
111         // Compute area
112         area = radius * radius * 3.14159;
113
114         // Display results
115         System.out.println("The area for the circle of radius "
116                             + radius + " is " + area);
117     }
118 }
119
120

```

121 OUTPUT:

```

122
123 The area for the circle of radius 20.0 is 1256.636
124
125
126

```

```
128
129 INPUT and OUTPUT
130 - Scanner class for console input
131 - System.out for standard output
132 - System.in for standard input
133
134
135
136 package pkg03;
137
138 // Import class Scanner from package java.util
139 import java.util.Scanner;
140
141 public class UserQA {
142
143     // Create a Scanner object
144     static Scanner key = new Scanner(System.in);
145
146     public static void main(String[] args) {
147
148         // Prompt the user to enter name
149         System.out.print("Tell me your name, please: \t");
150         // Read a line and store it
151         String a = key.nextLine();
152
153         // Prompt the user to enter age
154         System.out.print("Tell me your age, please: \t");
155         // Read an int and store it
156         int b = key.nextInt();
157
158         // Prompt the user to enter height
159         System.out.print("Tell me your height, please: \t");
160         // Read a double and store it
161         double c = key.nextDouble();
162
163         // Display a blank line
164         System.out.print("\n");
165
166         // Display collected information
167         System.out.println("Your name is: \t" + a + "\nYour age is: \t"
168             + b + "\nYour height is: " + c);
169     }
170 }
```

174 OUTPUT:

```
175
176 Tell me your name, please:    Mickey Mouse
177 Tell me your age, please:    91
178 Tell me your height, please: 2
179
180 Your name is:    Mickey Mouse
181 Your age is:    91
182 Your height is: 2.0
183
184
185
186
187
188
189
```

191

192 Class Scanner

Java SE 12 & JDK 12

193

194 <https://docs.oracle.com/en/java/javase/12/docs/api/java.base/java/util/Scanner.html>

195

String	next()	Finds and returns the next complete token from this scanner.
String	next(String pattern)	Returns the next token if it matches the pattern constructed from the specified string.
String	next (Pattern pattern)	Returns the next token if it matches the specified pattern.
BigDecimal	nextBigDecimal()	Scans the next token of the input as a BigDecimal.
BigInteger	nextBigInteger()	Scans the next token of the input as a BigInteger.
BigInteger	nextBigInteger (int radix)	Scans the next token of the input as a BigInteger.
boolean	nextBoolean()	Scans the next token of the input into a boolean value and returns that value.
byte	nextByte()	Scans the next token of the input as a byte.
byte	nextByte(int radix)	Scans the next token of the input as a byte.
double	nextDouble()	Scans the next token of the input as a double.
float	nextFloat()	Scans the next token of the input as a float.
int	nextInt()	Scans the next token of the input as an int.
int	nextInt(int radix)	Scans the next token of the input as an int.
String	nextLine()	Advances this scanner past the current line and returns the input that was skipped.
long	nextLong()	Scans the next token of the input as a long.
long	nextLong(int radix)	Scans the next token of the input as a long.
short	nextShort()	Scans the next token of the input as a short.
short	nextShort(int radix)	Scans the next token of the input as a short.

196

197

198 // Scanner is in the java.util package

199 import java.util.Scanner;

200

201 public class ComputeAverage {

202

203 public static void main(String[] args) {

204 // Create a Scanner object

205 Scanner input = new Scanner(System.in);

206

207 // Prompt the user to enter three numbers

208 System.out.print("Enter three numbers: ");

209 double number1 = input.nextDouble();

210 double number2 = input.nextDouble();

211 double number3 = input.nextDouble();

212

213 // Compute average

214 double average = (number1 + number2 + number3) / 3;

215

216 // Display result

217 System.out.println("The average of " + number1 + " " + number2

218 + " " + number3 + " is " + average);

219 }

220 }

221

222

223 OUTPUT:

224

225 Enter three numbers: 2.1 3.6 7.7

226 The average of 2.1 3.6 7.7 is 4.466666666666667

227