PRI LAB 2

BY

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C++ REVIEW

3 C++ KEYWORDS

Statement	C++
Comments	// this is a comment
Variable Declaration	int x,y ;
	char x;
	float x; // small real number
	double x; // large real numbers
	short int x;
	long int x; // a big integer
Constants	const int x = 20 ;
Arrays	int a[10];
Assignment	x = y ;
Input	cin >> x >> y ;
Output	cout << x << y ;
Conditional Execution	if (…) { … } else { … }
Loops :	
The while loop	while (…) { … }
The for loop	for (x=1 ;x <=20; x = x + 4)
The do loop	do { … } while (…) ;

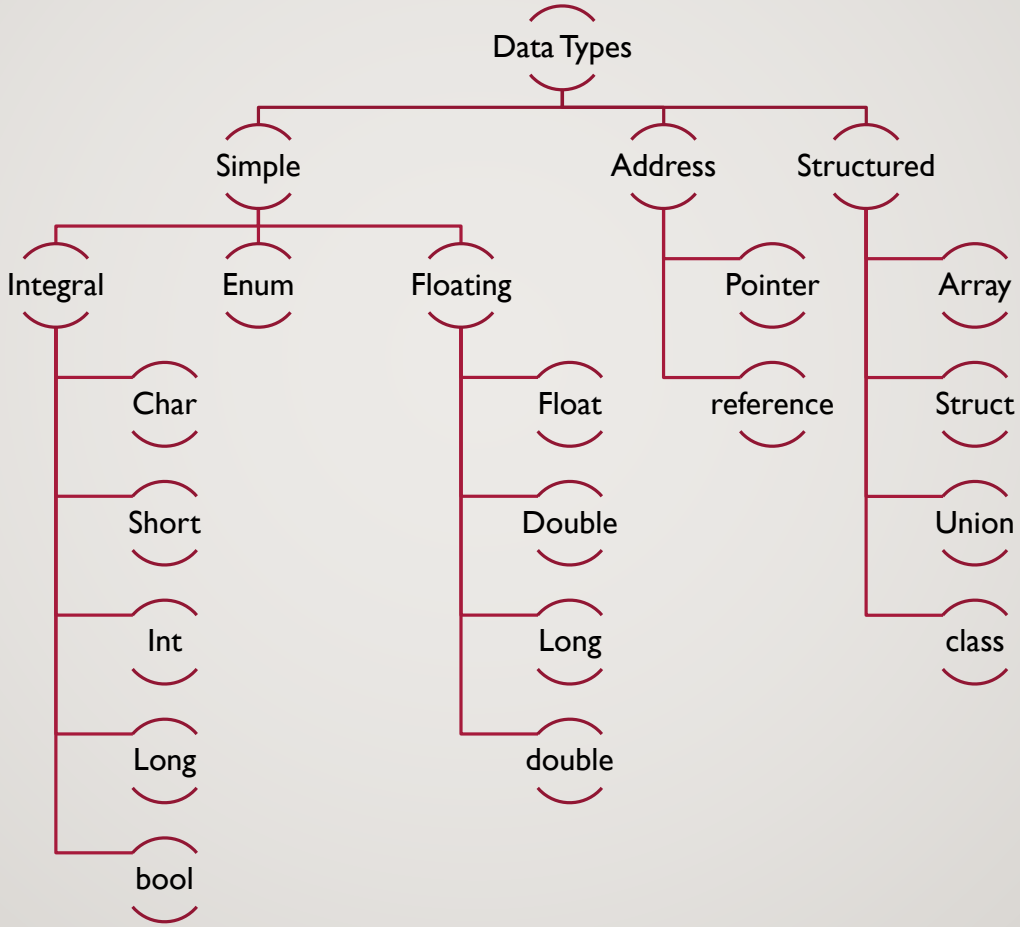
4 C++ KEYWORDS

Statement	C++
The operators:	
Addition	+
Subtraction	-
Multiplication	*
Division	/
Remainder	%

Equality	If (x == y)
	While (x == y)
	If (x = y) // wrong

Inequality	If (x != y)
Logical And	&&
Logical Or	||
Raising to a power	pow (x , y) ;
Square Root	sqrt (x) ;
Unconditional Termination of the Program	exit (0);
Newline in output	cout << x << endl; cout << "The value of x " << x << endl;

5 C++ DATA TYPES



6 PROGRAM SKELETON

```
// include required libraries
#include <iostream>
#include <string>
#include <cmath>
using namespace std;

// define general functions and data structures

// the main entry point
int main() {
    /* code goes here .. */
    return 0;
}
```

VARIABLES (DEFINITION)

```
int i = 7;
double d = 8.99;
char c = 'J';
string s = "c++";
bool b = true;
```

8 VARIABLES (INT)

```
int i = 7;
int j = 18 % i;      // modulo
int k = i + j;
j++;                 // j = j + 1
i = j * 3;
i -= k;              // i = i - k
cout << "i=" << i << " j=" << j << " k=" << k << endl;
cout << "i > j  is " << (i > j) << endl
     << "j < k  is " << (j < k) << endl
     << "i == k is " << (i == k) << endl
     << "i != k is " << (i != k) << endl;
```

9 VARIABLES (STRING)

```
string s1 = "My name is";
string s2 = "Sa3id";
string s3 = s1 + " " + s2;
s3 += '!';
cout << s3 << endl;
cout << s1.length() << endl;
cout << s2.find('3') << endl;
cout << s3.find(s2) << endl;
cout << s3[0] << endl;
cout << s3[s3.length()-1] << endl;
cout << s1.substr(3, 4) << endl;
```

VARIABLES (CHAR)

```
string s = "abcdef";
char c = s[1];
cout << c << endl;
cout << int(c) << endl;
char v = '7';
int i = v - '0';
cout << i << endl;
char x = 'F';
cout << x + ('a' - 'A') << endl;
cout << char(x + ('a' - 'A')) << endl;
```

11 ASCII CODE

1256 WINDOWS ARABIC

	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
0	32	0 48	@ 64	P 80	` 96	p 112	NOT USED 128	گ 144	NBSP 160	° 176	NOT USED 192	ذ 208	à 224	ً 240
1	! 33	1 49	A 65	Q 81	a 97	q 113	پ 129	‘ 145	، 161	± 177	ء 193	ر 209	á 225	ٌ 241
2	" 34	2 50	B 66	R 82	b 98	r 114	‚ 130	’ 146	¢ 162	² 178	آ 194	ز 210	â 226	ٍ 242
3	# 35	3 51	C 67	S 83	c 99	s 115	ƒ 131	“ 147	£ 163	³ 179	أ 195	س 211	ã 227	ً 243
4	$ 36	4 52	D 68	T 84	d 100	t 116	„ 132	” 148	¤ 164	´ 180	ؤ 196	ش 212	ن 228	ٌ 244
5	% 37	5 53	E 69	U 85	e 101	u 117	… 133	• 149	¥ 165	µ 181	إ 197	ص 213	ه 229	ٍ 245
6	& 38	6 54	F 70	V 86	f 102	v 118	† 134	– 150	¦ 166	¶ 182	ئ 198	ض 214	و 230	ّ 246
7	' 39	7 55	G 71	W 87	g 103	w 119	‡ 135	— 151	§ 167	· 183	ا 199	× 215	ç 231	÷ 247
8	(40	8 56	H 72	X 88	h 104	x 120	ˆ 136	NOT USED 152	¨ 168	¸ 184	ب 200	ط 216	è 232	ّ 248
9	) 41	9 57	I 73	Y 89	i 105	y 121	‰ 137	™ 153	© 169	¹ 185	ة 201	ظ 217	é 233	ù 249
A	* 42	: 58	J 74	Z 90	j 106	z 122	NOT USED 138	NOT USED 154	NOT USED 170	؛ 186	ت 202	ع 218	ê 234	° 250
B	+ 43	; 59	K 75	[91	k 107	{ 123	‹ 139	› 155	« 171	» 187	ث 203	غ 219	ë 235	û 251
C	, 44	< 60	L 76	\ 92	l 108	| 124	Œ 140	œ 156	¬ 172	¼ 188	ج 204	ـ 220	ى 236	ü 252
D	- 45	= 61	M 77	] 93	m 109	} 125	ج 141	Z-W N-J 157	SHY 173	½ 189	ح 205	ف 221	ي 237	L-R Z-W M-K 253
E	. 46	> 62	N 78	^ 94	n 110	~ 126	ژ 142	Z-W Join 158	® 174	¾ 190	خ 206	ق 222	î 238	R-L Z-W M-K 254
F	/ 47	? 63	O 79	_ 95	o 111	127	NOT USED 143	NOT USED 159	¯ 175	؟ 191	د 207	ك 223	ï 239	NOT USED 255

INPUT / OUTPUT

```
string s;
int i;
char c;
cin >> s;
cin >> i;
cin >> c;
cout << s << endl;
cout << i << endl;
cout << c << endl;
```

Input:
String 55 X

Output:
String
55
X

INPUT / OUTPUT

```
int n, m;
cout << "Please, enter two numbers: ";
cin >> n >> m;
int sum = n + m;
cout << "Their sum = " << sum <<endl;
```

CONDITIONAL STATEMENTS

```
int n, m;
cin >> n >> m;
if (m != 0) {
    cout << "n/m = " << n/m <<endl;
} else {
    cout << "DIVISION BY ZERO!!\n";
}
```

15 LOOPS (FOR)

```
int n;
cin >> n;
for (int i = 1; i <= n; i++) {
    cout << i << ' ';
}
```

LOOPS (WHILE)

```
int n;
cin >> n;
while (n != 7) {
    cout << n << endl;
    cin >> n;
}
```

LOOPS

```
int n;
while (1) {
    cin >> n;
    if (n == 7) break;
    cout << n << endl;
}
```

18 EXERCISE

```
int n, m;
cin >> n >> m;
if (n > m) {
    cout << "n is greater than m!!\n";
    return 0;
}
for (int i=n; i<=m; i++) {
    if (i % 2 == 0)
        cout << i << endl;
}
```

ARRAYS

```
int T[] = {4, 5, 8, 10};
cout << T[0] << endl;
T[0] = 11;
cout << T[0] << endl;
cout << T[3] << endl;
for (int i=0; i<4; i++)
     cout << T[i] << endl;
int R[10];
for (int i=0; i<10; i++)
     cin >> R[i];
```

EXERCISE

- Problem:
  - Find the max element in a list of integers.
- Sample Input:
  - 5
  - 4 2 9 7 3
- Sample Output:
  - 9

EXERCISE SOLUTION

```
int size=5;
int arr[5]={4,2,9,7,3};
int max=0;
for(int i=0;i<size;i++)
{
    if(max<arr[i])
    {
        max=arr[i];
    }
}
cout<<max<<endl;
```

22 THE END