Kotlin Basics — With C++ Comparisons

1. Variables

C++:
```
#include <iostream>
using namespace std;
int main() {
    int a = 10;       // mutable
    const int b = 20; // immutable
    cout << "a: " << a << ", b: " << b << endl;
    return 0;
}
```

Kotlin:
```
fun main() {
    var a = 10        // mutable
    val b = 20        // immutable
    println("a: $a, b: $b")
}
```

2. Data Types

C++:
```
#include <iostream>
using namespace std;
int main() {
    int age = 21;
    double pi = 3.14;
    bool isStudent = true;
    cout << "Age: " << age << ", Pi: " << pi << ", Student: " << isStudent << endl;
    return 0;
}
```

Kotlin:
```
fun main() {
    val age: Int = 21
    val pi: Double = 3.14
    val isStudent: Boolean = true
    println("Age: $age, Pi: $pi, Student: $isStudent")
}
```

3. Null Safety

C++:
```
#include <iostream>
using namespace std;
int main() {
    int* ptr = nullptr;   // can hold null
    if(ptr == nullptr)
        cout << "Pointer is null" << endl;
    return 0;
}
```

Kotlin:
```
fun main() {
    var name: String? = null
    if (name == null) {
```

```
        println("Name is null")
    }
}
```

4. Functions

```
C++:
#include <iostream>
using namespace std;
int sum(int a, int b) {
    return a + b;
}
int main() {
    cout << sum(3, 4) << endl;
    return 0;
}

Kotlin:
fun sum(a: Int, b: Int): Int {
    return a + b
}
fun main() {
    println(sum(3, 4))
}
```

5. Control Flow (If/Else)

```
C++:
#include <iostream>
using namespace std;
int main() {
    int age = 18;
    if (age >= 18) {
        cout << "Adult" << endl;
    } else {
        cout << "Minor" << endl;
    }
    return 0;
}

Kotlin:
fun main() {
    val age = 18
    if (age >= 18) {
        println("Adult")
    } else {
        println("Minor")
    }
}
```

6. Switch vs When

```
C++:
#include <iostream>
using namespace std;
int main() {
    int day = 3;
    switch(day) {
        case 1: cout << "Monday"; break;
```

```
        case 2: cout << "Tuesday"; break;
        case 3: cout << "Wednesday"; break;
        default: cout << "Other";
    }
    return 0;
}
```

```
Kotlin:
fun main() {
    val day = 3
    when(day) {
        1 -> println("Monday")
        2 -> println("Tuesday")
        3 -> println("Wednesday")
        else -> println("Other")
    }
}
```

7. Collections

```
C++:
#include <iostream>
#include <vector>
using namespace std;
int main() {
    vector<int> nums = {1, 2, 3, 4};
    for(int n : nums) {
        cout << n << " ";
    }
    return 0;
}
```

```
Kotlin:
fun main() {
    val nums = listOf(1, 2, 3, 4)
    for (n in nums) {
        print("$n ")
    }
}
```

Created By: Vemparala Sri Satya RaghuRam License: MIT Platform: Kotlin & C++ Basics