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**LAB EXERCISE 09 – ANSWER**

**1) Rewrite the following code segment using a multiple-selection statement in C++ and Java:**

*if ((k == 1) || (k == 2)) j = 2 \* k - 1*

*if ((k == 3) || (k == 5)) j = 3 \* k + 1*

*if (k == 4) j = 4 \* k - 1*

*if ((k == 6) || (k == 7) || (k == 8)) j = k – 2*

*. . .*

*print j*

**C++:**

#include <iostream>

int main() {

int j;

// You can define k 1 to 8, if you don't define in these intervals, it is going to be 0.

int k = 2;

switch(k) {

case 1:

case 2:

j = 2 \* k - 1;

break;

case 3:

case 5:

j = 3 \* k + 1;

break;

case 4:

j = 4 \* k - 1;

break;

case 6:

case 7:

case 8:

j = k - 2;

break;

}

std::cout << j;

}

**JAVA:**

public static void main(String[] args) {  
 int j = 0;  
 // We have to define j to the variable(value casting), if we don't, java can not be compiled.  
 // You can define k 1 to 8, if you don't define in these intervals, it is going to be 0.  
 int k = 2;  
 switch (k) {  
 case 1:  
 case 2:  
 j = 2 \* k - 1;  
 break;  
 case 3:  
 case 5:  
 j = 3 \* k + 1;  
 break;  
 case 4:  
 j = 4 \* k - 1;  
 break;  
 case 6:  
 case 7:  
 case 8:  
 j = k - 2;  
 break;  
 }  
 System.*out*.println(j);  
}

**2) Rewrite the following pseudocode segment using a loop structure in C++, Java, Python.**

*The result will be i=32, k=11:*

*k = 0*

*loop:*

*if k > 10 then goto out*

*k = k + 1*

*i = 3 \* k - 1*

*goto loop*

*out:*

*print i,k*

**JAVA:**

public static void main(String[] args) {  
 int k = 0;  
 int i = 0;  
 do {  
 k = k + 1;  
 i = 3 \* k - 1;  
 } while(k <= 10);  
 System.*out*.printf("The result will be i=%d, k=%d%n", i, k);/  
 */\*\* OUTPUT :   
 \* The result will be i=32, k=11  
 \*  
 \* Process finished with exit code 0  
 \*/*}

**C++:**

#include <iostream>

int main() {

int k = 0;

int i;

while(k <= 10) {

k = k + 1;

i = 3 \* k - 1;

}

std::cout << "The result will be i=";

std::cout << i;

std::cout << ", k=";

std::cout << k;

}

**PYTHON:**

k = 0

while(k <= 10):

k = k + 1

i = 3 \* k - 1

print("The result will be i="+ str(i) + ", k="+ str(k))

**3) Rewrite the following C++ program segment in Java and Python by using only IF statements and without using a switch statement. The result will be i=3, j=1:**

*j = -3;*

*for (i = 0; i < 3; i++) {*

*switch (j + 2) {*

*case 3:*

*case 2: j--; break;*

*case 0: j += 2; break;*

*default: j = 0;*

*}*

*if (j > 0) break;*

*j = 3 –i;*

*}*

*cout<< "\n i = " <<i<< " j = " << j ;*

**JAVA:**

public static void main(String[] args) {  
 int j = -3, i = 0;  
 while (i < 3) {  
 if (j + 2 == 3 || j + 2 == 2) j--;  
 else if (j + 2 == 0) j += 2;  
 else j = 0;  
 if (j > 0) break;  
 j = 3 - i;  
 i++  
 }  
 System.*out*.printf("i=

**Output: i=3 j=1**

**PYTHON:**

j = -3

i = 0

while(i < 3):

if(j + 2 == 3 or j + 2 == 2):

--j

elif(j + 2 == 0):

j += 2

else:

j = 0

if(j > 0):

break

j = 3 - i

i = i + 1

print("i=", str(i) + " j=" + str(j))

**Output:** **i=3 j=1**