College of Computer Studies

DEPARTMENT OF
SOFTWARE TECHNOLOGY

Hands-On Exam 2: Union and Intersection

You are to complete the requirements in the file LASTNAME_UandI.c which contains the program skeleton and description (indicated as comments) for the functions that are expected. In a gist, the requirement for this problem will produce 2 new numbers, first comprising of the **union** of the **unique digits** of the combination **of the two given positive integers**, while the second comprising of the intersection of the digits that appear in both given positive integers. Program terminates when at least one of the given numbers is non-positive.

Assumptions / Important Notes:

1. There are no 0 digits in the given numbers.
2. Each number contains unique digits.
3. The given numbers may not have the same number of digits.
4. **Checking always starts at the rightmost digit of the number. In the case of intersection, the digits in num1 is used to check if they appear in num2. Both union and intersection attach new digit at the right**. Other results deviating from this requirement (as seen in example run below and in the samples in the file template) will NOT be considered.

Refer below for expected sample run after completing the requirements.

```
Enter two numbers: 1234 3729
U: 123497
I: 32

Enter two numbers: 1324 234
U: 1324
I: 423

Enter two numbers: 23 5678
U: 238765
I: 0

Enter two numbers: 0 1
Program terminates.
```

You are given two files for this problem:

1. LASTNAME-UandI.c which contains some initial code that you'll need to complete. Comments indicate the requirement and restrictions imposed for the solution. For this file, the student's implementation can only have the [already provided] printf in the menu(). Other functions should NOT have printf(). This file should not be modified to contain the main().
2. UImain.c which contains the main() that can be used to test the requirement.

DELIVERABLE: Your C program source file **LASTNAME-UandI.c** with your own last name as filename. For example, if your lastname is SANTOS, then the source file should be named as SANTOS-UandI.c. Upload your source file in AnimoSpace before the indicated submission time.

TESTING & SCORING:

- Your program will be compiled via gcc -Wall. Thus, for each function that does not compile successfully, the score for that function is 0.
- Your program will be tested by your instructor with other main() (which may contain different values from the ones given to you) and with function calls of different parameter values.
- Full credit will be given for the function only if the student's implementation are all correct for all the test values used by the instructor during checking AND only if the student's implementation complied with the requirement and did not violate restrictions. Deductions will be given if not all test cases produce correct results. No credit is given if restrictions were not followed.