Lab 04

Each student will solve two problems from the list below. The assignment table is:

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| **Number in group** | **Number in group** | **Assigned problems** |
| 1 | 16 | prob A1 and prob B10 |
| 2 | 17 | prob A2 and prob B8 |
| 3 | 18 | prob A3 and prob B7 |
| 4 | 19 | prob A4 and prob B9 |
| 5 | 20 | prob A5 and prob B6 |
| 6 | 21 | prob A6 and prob B4 |
| 7 | 22 | prob A7 and prob B3 |
| 8 | 23 | prob A8 and prob B5 |
| 9 | 24 | prob A9 and prob B10 |
| 10 | 25 | prob A10 and prob B9 |
| 11 | 26 | prob A11 and prob B5 |
| 12 | 27 | prob A12 and prob B4 |
| 13 | 28 | prob A13 and prob B3 |
| 14 | 29 | prob A14 and prob B2 |
| 15 | 30 | prob A15 and prob B1 |
|  | 31 | prob A9 and prob B1 |

**Set A – String of bytes**

A1. A string of bytes A is given. Construct string B such that each element from B represent the sum of two consecutive elements from string A.

If A = 2, 3, 4 => B = 5, 7

A2. A string of bytes A is given. Construct string B such that each element from B represent the difference of two consecutive elements from string A.

If A = 2, 3, 1 => B = -1, 2

A3. A string of bytes A is given. Construct string B such that each element from B represent the remainder for the division of two consecutive elements from string A.

If A = 16, 8, 3 => B = 0, 2

A4. A string of bytes A is given. Construct string B such that each element from B represent the product of two consecutive elements from string A.

If A = 2, 4, 5, 7 => B = 8, 20, 35

A5. A string of bytes A is given. Construct string B such that each element from B represent the division of two consecutive elements from string A.

If A = 17, 4, 2 => B =4, 2

A6. A string of bytes A is given. Construct string B containing only positive values from string A.

If A = 17, 4, 2, -2, -1 => B = 17, 4, 2

A7. A string of bytes A is given. Construct string B containing only negative values from string A.

If A = 17, 4, 2, -2, -1 => B = -2, -1

A8. A string of bytes A is given. Construct string B containing only odd values from string A.

If A = 17, 4, 2, -2, -1 => B = 17, -1

A9. A string of bytes A is given. Construct string B containing only even values from string A.

If A = 17, 4, 2, -2, -1 => B = 4, 2, -2

A10. A string of bytes A is given. Construct string B containing only values divisible with 3 from string A.

If A = 10, 15, 5, 18 => B = 15, 18

A11. A string of bytes A is given. Construct string B containing only values divisible with 4 from string A.

If A = 16, 20, 5, 18 => B = 16, 20

A12. A string of bytes A is given. Construct string B containing only values divisible with 5 from string A.

If A = 16, 20, 5, 18 => B = 20, 5

A13. A string of bytes A is given. Construct string B containing only values divisible with 6 from string A.

If A = 12, 13, 14, 18 => B = 12, 18

A14. A string of bytes A is given. Construct string B containing only values divisible with 7 from string A.

If A = 12, 13, 14, 18, 21 => B = 14, 21

A15. A string of bytes A is given. Construct string B containing only values divisible with 9 from string A.

If A = 9, 18, 4=> B = 9, 18

**Set B – String of words / doublewords**

B1. A string of words S is given. Compute string D containing only high bytes from string S.

If S = 1234h, 5678h, 1a2bh => D = 12h, 56h, 1ah

B2. A string of words S is given. Compute string D containing only low bytes from string S.

If S = 1234h, 5678h, 1a2bh => D = 34h, 78h, 2bh

B3. A string of words S is given. Compute string D containing only low bytes multiple of 5 from string S.

If S = 1223h, 5628h => D = 23h, 28h

B4. A string of words S is given. Compute string D containing only high bytes multiple of 7 from string S.

If S = 1735h, 0778h, 0E20h => D = 07h, 0Eh

B5. A string of words S is given. Compute string D containing only low bytes multiple of 9 from string S.

If S = 3812h, 5678h, 1a09h => D = 12h, 09h

B6. A string of words S is given. Compute string D containing only high bytes multiple of 3 from string S.

If S = 0607h, 5678h, 0920h => D = 06h, 09h

B7. A string of doublewords S is given. Compute string D containing only high bytes from high words from each doubleword from string S.

If S = 12345678h, 1a2b3c4dh => D = 12h, 1ah

B8. A string of doublewords S is given. Compute string D containing only low bytes from high words from each doubleword from string S.

If S = 12345678h, 1a2b3c4dh => D = 34h, 2bh

B9. A string of doublewords S is given. Compute string D containing only low bytes from low words from each doubleword from string S.

If S = 12345678h, 1a2b3c4dh => D = 78h, 4dh

B10. A string of doublewords S is given. Compute string D containing only high bytes from low words from each doubleword from string S.

If S = 12345678h, 1a2b3c4dh => D = 56h, 3ch