**SW Optimization camp 2020**

**Assignment #2**

(Due Fri. 3rd. Jul.)

**Guidelines**

1. Please submit via e-mail by the deadline (To: [wso1017@unist.ac.kr](mailto:wso1017@unist.ac.kr)).
2. Please set the title of e-mail as ‘SWcamp\_홍길동\_학번\_HW2’.
3. Please do NOT show your final answers only. Please show all your intermediate steps in your solutions to get full marks.

**Problem #1**

Consider the following Integer Programming (IP) problem:

|  |  |
| --- | --- |
| minimize z = |  |
| subject to |  |
|  |  |
|  |  |
|  | : integer. |

Use the Branch and Bound method to derive the (integer) optimal solution.

(Hint: Please start with the optimal solution of the corresponding LP problem.)

**Problem #2**

1. Discuss the relationship between feasible solution (FS) and basic feasible solution (BFS).
2. Discuss the relationship between basic feasible solution (BFS) and optimal basic feasible solution (OBFS).
3. Discuss the relationship between Class P and Class NP in terms of computational complexity.
4. Discuss why the Integer Programming (IP) problem is of higher computational complexity than its corresponding Linear Programming (LP) problem.

**Problem #3**

Improve the ‘password’ code using roulette wheel selection method. Please attach the snapshot of parts of the code that you modified.