

## First Assignment:

**Target:** Write the code that creates an auto-question. After asking question, it will show the ship underwater volume, buoyancy Force and draws ship cross section and waterlines.

**Due Date:** 15 April 2021 Thursday - 23:59

### Details:

**First Step:** Write the auto question producer program.

Program will produce the question: “**What is the underwater volume and Buoyancy Force of the ship which is {L} meter length, {B} meter Breadth, {T} meters draft and Cb is {Cb}?**”

{L} = Ship Length is random integer between 50 and 200 meters

{B} = Ship Breadth is length/6.5

{T} = Ship Draft is breath/3.5

Cb = Random between 0.55 and 0.85

Then, it will check the result whether it is correct or not.

Description:

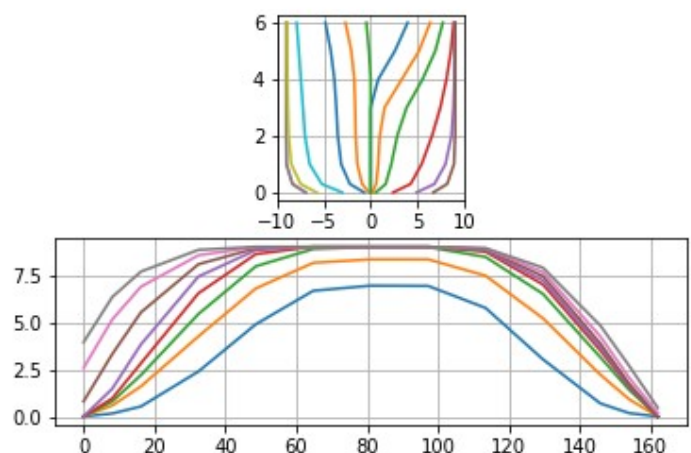
1. Assign the random number for L
2. Calculate B by using L
3. Calculate T by using B
4. Assign the random number for Cb
5. Put the number in the question text and ask user.
6. Check answer. If it is correct, Display “**Congratulations, The answer is {Volume} and Water lift is {lift\_force}**”. If not correct, Display “**Your answer is wrong. The answer is {Volume} and Water lift is {lift\_force}**”

### Second Step:

1. Import attached s60.txt file which has series 60 ship offset coefficient
2. Multiply half breadth with coefficient of s60 ship
3. Create a list for waterlines (wl=[0, 0.3, 1, 2, 3, 4, 5, 6] \* Draught / 4) and frame numbers (pn=[0, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 9.5, 10] \* Length / 10)
4. Draw cross section, and waterlines by using “FOR” loop
5. Save new offset table as a text file which name is {L}\_{B}\_{T}.txt

### Third Step:

1. Ask the question to the user. (First Step)
2. Show answer and plot graph (Second Step)
3. Save the graph as {L}\_{B}\_{T}.png



**Fig. 1** An example drawings