Simulator Requirement Specification

Department Name	Mechanical
Class	S.Y. B.Tech
Semester	I st Sem
Subject Name	Fluid Mechanics.
Experiment No.	01
Experiment Name	Verification of the Bernoulli's Theorem.

Version History

Sr. No.	Version Number	Created By	Approved By	Date
1	v1.0	Akash Salunkhe.	Prof. Mr. Rohit Ghulanavar	28/10/2020

Detailed Requirement Specification

Req. ID	Visual Entity Required	Requirement Description	Comments
REQ1	An empty Block in front of the text 'Volume Flow Rate' showing three options.	This block should offer 3 choices of inlet velocity to user.	User has to select one of these 3 choices.
REQ2	'CLEAR'	It should clear the choice of 'Volume flow Rate' that user has previously made.	-
REQ3	Empty box in front of the text 'Velocity at section 1'	It will show the value of velocity of water at section1.	V_1 = (Volume Flow Rate)/ (Area of duct at section 1)
REQ4	Empty box in front of the text 'Pressure head at Section 1'	It should display the pressure head at section 1 value which will be fixed for Volume Flow Rate that user has previously chosen.	$H_1 = C1 - \frac{V1^2}{2*g}$
	Empty box in front of the text 'Velocity at section 2'	It will show the value of velocity of water at section 2.	V_2 = (Volume Flow Rate)/ (Area of duct at section 2)
REQ5	Empty box in front of the text 'Pressure head at section 2'	It should display the pressure head at section 2 value which will be fixed for Volume Flow Rate that user has previously chosen.	$H_2 = C1 - \frac{V2^2}{2*g}$
	Empty box in front of the text 'Velocity at section 3'	It will show the value of velocity of water at section 3.	V_3 = (Volume Flow Rate)/ (Area of duct at section 3)
	Empty box in front of the text 'Pressure head at section 3'	It should display the pressure head at section 3 value which will be fixed for Volume Flow Rate that user has previously chosen.	$H_3 = C1 - \frac{V3^2}{2*g}$
REQ6	Display the Bernoulli's Equation.		Bernoulli's Equation is - **$P/\rho g + V^2/2g + Z =$**

			Constant **i.e,** **$H + V^2/2g + Z$=Constant**
REQ7	Empty box in front of the text 'Total head at section 1'	User should enter the value of total head by calculating himself/herself.	And if the entered value is correct 'CORRECT' should appear as notification or should appear in front of the block. It must be equal to C1.
REQ8	Empty box in front of the text 'Total head at Section 2 '	User should enter the value of total head by calculating himself/herself.	And if the entered value is correct 'CORRECT' should appear as notification or should appear in front of the block. It must be equal to C2.
REQ9	Empty box in front of the text 'Total head at Section 3 '	User should enter the value of total head by calculating himself/herself.	And if the entered value is correct 'CORRECT' should appear as notification or should appear in front of the block. It must be equal to C3.
REQ10	RESET	It will reset the whole simulator page as it was when user arrived.	

Constants used in the experiment:

g = acceleration due to gravity = 9.81 m/s^2 = 981 cm/s^2

ρ = Density of water = 1000 m^3/kg