PIPE LOSSES CALCULATOR

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ABSTRACT

Pipe losses are one of the most important factors in fluid mechanics studies. Most engineers use it to design a pipeline system as this kind of projects is very costly and needed to be efficient.

With this pipe losses calculator, we aim to give user a method that could simplify the task. Even though it is still early to design an advanced program, this tool should enable us to calculate the basic calculation of pipe losses.

In this pilot project, we tried to invent something new in preparing our final project. By making this engineering application, we can start making new things that are not done yet. Visual Basic 6 is chosen as our programming language because it is easier to use and has better user interface. This calculator can simplify the process of finding the friction factor, f from the Moody Diagram. Colebrook Equation can be used to find the value of f, as the formula is actually the root or basis of the Moody Diagram. Using the Moody Diagram is quite time consuming, so with this program it will ease our workloads.

After conducting some tests and finding alternative solutions, we managed to put up our effort to design this software. Visual Basic 6 is such a useful tool that can be easily used by other to create any applications, like this 'pipe losses calculator'.

CONTENTS

1.0 INTRODUCTION

1.1 OBJECTIVES

- To compute the losses in single pipe system using the Darcy Equation.
- To solve some typical pipe flow problems in the fluid mechanics field.
- To develop a program for computing pipe losses using VISUAL BASIC 6.
- To validate the accuracy of the developed program with some typical test cases.

1.2 SCOPE & SIGNIFICANCE

The area of our study is single pipe system using fluids, for example water. With the help of **Colebrook Formula**, we can calculate the pipe losses from the system to get friction factor, f for the <u>turbulent flow</u> and we use $f = \dfrac{64}{\text{Re}}$ for <u>laminar flow</u>.

Using this software, we can simplify the complex calculations of pipe losses. We use programming as a problem solver as we need to simplify things and making unarranged data more flexible and easier to manage.

In the near future, we can provide this type of software to our laboratory so that we can ease complex calculations and optimize any experiment involving pipe losses.