**Requirements Documentation**

Abstract:

The calculator program is a project that calculates the user’s desired car price given four estimated criteria: manufacture’s cost, dealer markup price, sales tax, and pretax discount. The estimated information is then taken in, and processed using a simple equation. Our program results had matched up to our expectations, outputting the correct value given the four estimated costs as input.

Introduction:

This project gave us an overview to the basics of C programming and the CodeBlocks IDE. The result of this project was a program that allows the user to be able to estimate his/her car price based on a few estimated values.

Inputs to the Calculator:

1. The manufacture’s cost of the vehicle chosen by the user. This input is used to help give the initial base price to what the user is expected to pay.
2. The estimated dealer’s markup price chosen by the user. This input is used to help give the user an idea of how much more he/she needs to pay in addition to the base price.
3. The estimated sales tax chosen by the user. This input is used to figure out the additional costs associated from tax levied by the government on the vehicle.
4. The dealer discount chosen by the user. This input is used to help reduce the total price (before tax) of the car the user will pay.

Outputs of the Calculator:

The program will output the total price of the vehicle after the user inputs the manufacturing costs, estimated dealer markup, the sales tax, and the dealer discount.

Major Functions:

This program gives the user an estimation of the total price of the vehicle based on four estimated input cost values. The estimated input values are manufacturing costs, estimated dealer markup, sales tax and the dealer discount.

**Design Specification**

Abstract:

The listPrice program is a project that calculates the user’s desired car price given four estimated criteria: manufacture’s cost, dealer markup price, sales tax, and pretax discount. The estimated information was then taken in, and processed using a simple equation. Written in C and the CodeBlocks IDE, listPrice is our first program that provides taught us the fundamental basics of how to program in C. Our program results have matched up to our expectations, outputting the correct value given the four estimated costs as input.

Introduction:

This project gave us an overview to the basics of C programming and the CodeBlocks IDE. The result of this project was a program that allows the user to be able to estimate his/her car price based on a few estimated values.

Inputs to the Calculator:

All values entered into listPrice must be entered as doubles. If any other value is entered (for instance, a string or a character), then the program will fail and not output the correct calculated answer.

1. Manufacture’s cost of the vehicle

Manufacture’s cost must be a positive number, and cannot be 0. If it is less than 0, then the output of the total car price will be negative.

1. Estimated dealer markup

Entered dealer markup must be greater than or equal to 0, and entered as a percentage between 0 and 100 (for instance 5% markup is entered as a 5). If the markup is less than 0, then the dealer will be losing money.

1. Estimated Sales Tax

Entered sales tax must be greater than or equal to 0, and entered as a percentage that is greater than 0 (for instance 9.7% sales tax is entered in as 9.7). If the tax is less than 0, then the user will receive an unintentional discount from the government.

1. Dealer Discount

Discount must be greater or equal to 0, and entered as a percentage between 0 and 100 (for instance a 2% discount is entered as a 2). If the discount is less than 0, then the final price of the vehicle will be greater than if no discount had been applied. If the dealer discount is greater than 100, then the resulting vehicle price will be negative.

Outputs of the Calculator:

Outputs the total calculated cost of the vehicle as a double. The output is expected to be greater than 0. If the output is negative, then one or more of the inputs were incorrectly inputted into the program.

Major Functions:

The listPrice program calculates the total cost of the vehicle given four estimated price inputs. Each input is taken in as a double, and then computed using the formula: in\_price \* (1 + markup\_price / 100) \* (1 - discount\_price / 100) \* (1 + tax\_percentage / 100). The output of the vehicle cost is the total cost that the user should expect to the pay if he/she were to purchase that particular vehicle.