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Assignment 1 Report

1. Encoding Scheme

My Huffman encoder's coding scheme included using an unordered map to store the unique character keys and character frequencies. Then, I used a minimum heap structure to create nodes that represented each character and corresponding frequency.

2. Changes outside of huffman.cpp:

The only change I made outside of huffman.cpp was in the main.cpp file, where I change the name of the input text file.

3. I have an executable file called HuffMan that I compiled without using the Makefile provided. When using the makefile, I was getting an error corresponding to missing input files, so in the interest of time I went with compiling the files manually using the command:

sudo g++ main.cpp huffman.cpp -o HuffMan

After the files were compiled, I ran the code using the command:

./HuffMan input_single.txt Code.txt Decoded.txt

4. Currently my code does not completely encode the input text provided. I was able to set up arrays that contained the unique characters and corresponding frequencies, but I spent a lot of time trying to debug compiler errors and determining the correct approach to setting up the encoder. The sample output of my code is shown below:

```
xilinx@pynq:~/jupyter_notebooks/WES_237B/lab1_huffman_decoder$ ./HuffMan input_sin
gle.txt Code.txt Decoded.txt
WES237B Assignment 1
With Unordered map:
{.: 1}
{g: 1}
{n: 2}
{c: 3}
{,: 1}
{
: 1}
{a: 2}
{s: 4}
{o: 4}
{r: 3}
{e: 6}
{m: 3}
{ : 7}
{L: 1}
{i: 6}
{p: 2}
{u: 2}
{d: 2}
{l: 2}
{t: 5}
1d0
< Lorem ipsum dolor sit amet, consectetuer adipiscing elit.
FAILURE
xilinx@pynq:~/jupyter_notebooks/WES_237B/lab1_huffman_decoder$ 
```