# CS 201 Homework 02

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9/17/2021

- Repository Link: https://github.com/Frozenmeyer/cs201.git

- Git Commits: https://github.com/Frozenmeyer/cs201.git

- This homework took approximately 6 hours to complete.

## 1 Design

The first step to creating the diamond was to determine how I'd make it from the size number. As it turns out the diamond has $2n + 1$ lines and at its widest point. From there it was just a series of while loops with various variables as counters to create the desired shape.

## 2 Post Mortem

This program had a lot of trial and error for me. In addition the method by which I save / compile my files is very time consuming. I need to find a faster way to test my errors than the one I'm currently using.

## 3 Answers to Questions

In this section, you will write the answers to the questions in the homework assignment.

1. Compiler reads and runs your code. The compiler exists to both test the functionality of your code and execute it when necessary. How the

compiler works and why it acts like it does leads us to write code in specific ways. Stages: Untested source file, source file that compiles, then potential g++ file.

2. Header visually starts a new section. Compile time error happens when your code takes too long to compile (usually bad code). A statement is a piece of code that makes a declaration. Linker puts to sections of code together.

3. A source file should be able to run by itself, whereas an object file is used by another set of code to do things.

4. prompt means asking for an input. Ex: "Type a number", that is a prompt asking the user to input a number.

5. Text book doesn't have a compiler to test your code. Programming like many other skills is learned through practice.

6. I can type backslash n, but it makes a new line.

7. A variable holds a number that it is given until called. Objects are constructs like classes. Literals are preexisting non re writable information types. Int is a literal

8. Integer Numerals, Floating-Point Numerals, Characters, Strings and Boolean Values.

9. 1: number, 2: defaults, 3: tester, 4: program, 5: character.

10. Rounding can be very problematic as most floats are stored as an imprecise string of numbers

# 4 /

/ HW 1 // Leif King // 9/13/2021 // // Create a diamond using  where the diamond is 2n-1 wide and tall

include ¡iostream¿

int main() std::cout ¡¡ "Welcome to diamond maker, please type a number to select a size! "; int n = 0; int i = 0; int k = 0; int j = 0; std::cin ¿¿ n; int p = n; std::cout ¡¡ " " ¡¡ std::endl; while (n ¿ 0) while (i ¡ n - 1) ++i; std::cout

¡¡ " "; i = 1; ++j; while (i ¡ j) std::cout ¡¡ ""; ++i; while (k == 1) ++j; k = 0;   std::cout ¡¡ "" ¡¡ std::endl; –n; i = 0; k = 1;  n=0; –p; while (p ¿ 0) ++i; while (n ¡ i) std::cout ¡¡ " "; ++n;  n = 0; k = 2*p -2; while (k ¿ 0) std::cout ¡¡ ""; –k;  std::cout ¡¡ "" ¡¡ std::endl; –p;

## 4.1   Git Commit Messages

| c X Date | Message |
| --- | --- |
| 2021-08-31 | Tried to commit but couldn't |
| 2021-09-1 | Was able to commit the project |

## 4.2   HW1.cpp

c++
   // HW 1 // Leif King // 9/13/2021 // // Create a diamond using  where the diamond is 2n-1 wide and tall

   include ¡iostream¿

   int main() std::cout ¡¡ "Welcome to diamond maker, please type a number to select a size! "; int n = 0; int i = 0; int k = 0; int j = 0; std::cin ¿¿ n; int p = n; std::cout ¡¡ " " ¡¡ std::endl; while (n ¿ 0) while (i ¡ n - 1) ++i; std::cout ¡¡ " ";  i = 1; ++j; while (i ¡ j) std::cout ¡¡ ""; ++i; while (k == 1) ++j; k = 0;   std::cout ¡¡ "" ¡¡ std::endl; –n; i = 0; k = 1;  n=0; –p; while (p ¿ 0) ++i; while (n ¡ i) std::cout ¡¡ " "; ++n;  n = 0; k = 2*p -2; while (k ¿ 0) std::cout ¡¡ ""; –k;  std::cout ¡¡ "" ¡¡ std::endl; –p;

## 4.3   Homework 1

c++HW1.hpp

## 4.4   Homework 1 Source

c++HW0.cpp