

# CIS 554 Homework 5

---

**Homework Objective:** Provide students with an opportunity to work with multi-dimensional vectors and functions.

**Due Date:** Refer to CIS554 Blackboard

**Description:** Character Fonts

1. Write a C++ class, WordFont, that will read a word that you input, and draw it on the screen with a character height and width that you specify.
2. You will use a 2-dimensional vector data structure to draw your word. The 2-dimensional vector will be used to maintain the location of each “pixel” of the input word characters
3. Once the vector has been populated with all the letters of the word, using the drawing character specified by the user, with the proper font, you will print out the contents of the vector to the screen to print the entire word.
4. You may choose to implement a subset of the English alphabet, but you must tell the user what the valid letters are when you prompt for the word. You **MUST** implement at least 15 letters, including the vowels a, e, i, o and u.
5. Each letter must be implemented in the WordFont class as a separate method.
6. Each letter method must have the proper parameters to allow it to 1) be placed anywhere in the word, 2) use the correct pixel, and 3) adjust to the font size.
7. You may limit the word to a certain number of characters, but you must inform the user of any limitations (e.g. limit the word size to 8 letters or less).
8. You must have a separate method in your class that prints out the word that is represented by the pixels in the 2dimensional vector.
9. The output of the program *might* look something like that shown below.

## Bold Word Example

```
Enter a word (8 letters or less), using a, e, i, o, u, c, b,
d, f, g, h, j, k, l, m, n, r, s, t: cat
Enter the pixel character you want to use to draw: *
Enter the Font Size (8-12): 8
Bold? (0=No, 1=Yes) 1
```

```
*****  *****  *****
*****  **      **  *****
**      **      **      **
**      *****      **
**      *****      **
**      *        **      **
*****  **      **      **
*****  **      **      **
```

```
Press any key to continue
```

### Non-Bold Word Example

```
Enter a word (8 letters or less), using a, e, i, o, u, c, b,
d, f, g, h, j, k, l, m, n, r, s, t: cat
Enter the pixel character you want to use to draw: *
Enter the Font Size (8-12): 8
Bold? (0=No, 1=Yes) 0
```

```
*****  *****  *****
*        *        *        *
*        *        *        *
*        *****   *
*        *        *        *
*        *        *        *
*        *        *        *
*****  *        *        *
```

Press any key to continue

**Submission:** Provide the information as follows:

1. Submit zipped source files to the Blackboard.

Hint: The 2-dimensional vector is used as follows. Note that for the given word CAT, the pixels of the C and A letters are represented in the 2-dimensional vector as the “\*” character, selected by the user. Because the font size of 8 was input by the user, each character is 8x8 pixels.

		Column																			
		0	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18	19	20...
Row	0	*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*			
	1	*									*							*			
	2	*									*							*			
	3	*									*	*	*	*	*	*	*	*			
	4	*									*							*			
	5	*									*							*			
	6	*									*							*			
	7	*	*	*	*	*	*	*	*		*							*			