Problem 1:

```
#include <stdio.h>
#include <string.h>
#include <ctype.h>

void
clean (char before[], char after[]){

	int i, k;

// Checks if any character in the string is not alphanumeric. If it isn't it replaces
it with a space
	for (i = 0; i <= strlen(before); i++){
		if (isalpha(before[i]))
			after[i] = before[i];
		else if(!isalpha(before[i]))
			after[i] = ' ';
	}

// Looks at the new string and if it finds a space, shifts the entire string after the
space over by one address
	for (i = 0; i <= strlen(after); i++){   //
		while (after[i] == ' '){
			if (isspace(after[i])){
				for (k = i; k <= strlen(after); k++)
					after[k] = after[k + 1];
			}
		}
	}

// Looks at new string and finds the last space and replaces it with end of array
character
	for (i = 0; i <= strlen(after); i++){
		if(!isalpha(after[i]))
			after[i] = '\0';
	}

// Looks at new string and converts any uppercase characters to lowercase characters
	for (i = 0; i <= strlen(after); i++){
		if (isupper(after[i])){
			after[i] = tolower(after[i]);
		}
	}
}
```

```
void
reverse (char before[], char after[], int i){

// Checks if the current address is equal to the opposite address (counting backwards
from the back of the string)
// If not true, swaps the two characters and calls itself again
	if (i == (int)(strlen(after)))
		after[strlen(after) + 1] = '\0';
	else {
		after[strlen(after) - i - 1] = before[i];
		reverse (before, after, i + 1);
	}
}

int
main (void){

	char input[50], cleaned[50], flipped[50];
	int i = 0;

	printf("Enter your word or sentence (50 character max):\n");

	fgets(input, 50, stdin);

	printf("%s", input);

	clean(input, cleaned); // Calls clean function

	printf("%s\n", cleaned);

	strcpy(flipped, cleaned); // Sets flipped string equal to cleaned array

	reverse (cleaned, flipped, i); // calls reverse function

	printf("%s\n", flipped);

	i = strcmp(flipped, cleaned); // compares flipped to cleaned
	if (i == 0)
		printf("It's a palindrome!");
	else
		printf("It's not a palindrome!");

return 0;
}
```

```
Enter your word or sentence (50 character max):
Drab as a fool, aloof as a bard.

Input String:   Drab as a fool, aloof as a bard.
Cleaned:        drabasafoolaloofasabard
Flipped:        drabasafoolaloofasabard

It's a palindrome!

------------------
(program exited with code: 0)

Press any key to continue . . .
```

```
Enter your word or sentence (50 character max):
It ain't over till it's over

Input String:   It ain't over till it's over
Cleaned:        itaintovertillitsover
Flipped:        revostillitrevotniati

It's not a palindrome!

------------------
(program exited with code: 0)

Press any key to continue . . .
```

```
Enter your word or sentence (50 character max):
radar

Input String:   radar
Cleaned:        radar
Flipped:        radar

It's a palindrome!

------------------
(program exited with code: 0)

Press any key to continue . . .
```

```
Enter your word or sentence (50 character max):
When you come to a fork in the road, take it

Input String:   When you come to a fork in the road, take it
Cleaned:        whenyoucometoaforkintheroadtakeit
Flipped:        tiekatdaorehtnikrofaotemocuoynehw

It's not a palindrome!

------------------
(program exited with code: 0)

Press any key to continue . . .
```

```
Enter your word or sentence (50 character max):
Marge lets Norah see Sharon's telegram.

Input String:   Marge lets Norah see Sharon's telegram.
Cleaned:        margeletsnorahseesharonstelegram
Flipped:        margeletsnorahseesharonstelegram

It's a palindrome!

------------------
(program exited with code: 0)

Press any key to continue . . .
```