קורס תכנות-תרגיל מס' 7
דוגמא לפתרון

1. ממחרוזת למספר

```
#include <stdio.h>
#include <math.h>

#define SIZE 101

double convert_str_to_double (char str[]);

int main ()
{
	char str[SIZE];
	printf("Enter string:\n");
	scanf("%s",str);

	printf("The number is %g\n",convert_str_to_double (str));
	return 0;
}


double convert_str_to_double (char str[]) {
	double res = 0;
	int i = 0, p = -1, sgn = 1;

	if (str[0] == '-') {
		sgn = -1;
		i = 1;
	}

	while (str[i] != '.') {
		res = res * 10 + (str[i] - '0');
		++i;
	}

	++i;
	while (str[i] != '\0') {
		res += ((str[i]-'0') * pow(10,p));
		--p;
		++i;
	}

	return res*sgn;
}
```

2. זיהוי תבנית במחרוזות

```c
#include <stdio.h>
#define MAX 101
#define NUM 4

// identify whether a string is of the form a^nbc^k, where as, a,b,c are
different characters and k < n
int identify (char str[]) {
	int n = 0;
	int i = 0, k = 0;
	char c1,c2,c3;

	// first char^n
	if (str[i] == '\0')
		return 0;
	c1 = str[i];
	++i;
	while(str[i] == c1 ) {
		++i;
	}
	n = i;

	// second char
	if (str[i] == '\0') return 0;
	c2 = str[i];
	++i;

	// third char^k (k < n)
	if (str[i] == c1 || str[i] == c2) return 0;
	if(str[i] == '\0') return 1;

	c3 = str[i];
	while(str[i] == c3) {
		++i;
		++k;
	}

	if (k < n && str[i] == '\0') return 1;
	return 0;
}

int main(void) {
	int i;
	char str [NUM][MAX];
	for (i = 0; i < NUM; ++i) {
		printf("enter string %d:\n",i);
		scanf("%s",str[i]);
	}
	printf("\nOutput strings:\n");
	for (i = 0; i < NUM; ++i) {
		if (identify(str[i])) {
			printf("%s\n",str[i]);
		}
	}
	return 0;
}
```