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Practice 13

DLL Code

```
#include <stdio.h>
#include <string.h>
#include <stdbool.h>
#include <windows.h>

__declspec(dllexport) int asciiBinaryToInt(char *s);

__declspec(dllexport) int asciiHEXToInt(char *s);

__declspec(dllexport) double asciiToDouble(char *s);

int asciiBinaryToInt(char *s)
{
    int result = 0;
    int pow = 1;

    for (int i = strlen(s)-1; i >= 0; i--)
    {
        if (s[i] == '1')
        {
            result += pow;
        }
        pow *= 2;
    }

    return result;
}

int hexLetterToInt(char letter)
{
    if (letter >= 'a')
    {
        return letter - 'a' + 10;
    }
```

```
    else
    {
        return letter - 'A' + 10;
    }

}

int asciiHEXToInt(char *s)
{
    int result = 0;
    int pow = 1;

    for (int i = strlen(s)-1; i >= 0; i--)
    {
        if (s[i] <= '9')
        {
            result += (s[i] - '0') * pow;
        }
        else
        {
            result += hexLetterToInt(s[i]) * pow;
        }

        pow *= 16;
    }

    return result;
}

double asciiToDouble(char *s)
{
    double result = 0;

    int whole = 0, decimal = 0;
    int pow = 1, decount = 1;
    int remaining = 0;

    double decimalD = 0.0;

    bool point = false;
    bool negative = false;

    for (int i = strlen(s)-1; i >= 0; i--)
```

```
{
    if (s[i] == '.')
    {
        point = true;
        remaining = i-1;
        break;
    }

    if (isdigit(s[i]))
    {
        decimal += (s[i] - '0') * pow;
    }

    if (s[i] == '-' && i == 0)
    {
        negative = true;
    }

    pow *= 10;
    decount *= 10;
}

if (!point)
{
    return decimal;
}

pow = 1;

for (int i = remaining; i >= 0; i--)
{
    if (isdigit(s[i]))
    {
        whole += (s[i] - '0') * pow;
    }

    if (s[i] == '-' && i == 0)
    {
        negative = true;
    }

    pow *= 10;
}
```

```
    decimalD = ((double) decimal) / ((double) decount);

    result = (double) whole + decimalD;

    if (negative)
    {
        result *= -1;
    }

    return result;
}
```

Test Code 1

```
#include <stdio.h>
#include <stdlib.h>
#include <windows.h>

HINSTANCE hCodigoDll;

typedef int (ASCII_TO_BINARY)(char *s);

ASCII_TO_BINARY* ptrFuncAsciiToBinary = 0;

typedef int (ASCII_TO_HEXA)(char *s);

ASCII_TO_HEXA* ptrFuncAsciiToHexa = 0;

typedef double (ASCII_TO_DOUBLE)(char *s);

ASCII_TO_DOUBLE* ptrFuncAsciiToDouble = 0;


void main()
{
    char *binario = "10011";
    char *hexa = "CACA";
    char *floto = "234.54";
```

```
    if (hCodigoDll = LoadLibrary("Conversion.dll"))
    {
        if (ptrFuncAsciiToBinary = (ASCII_TO_BINARY*)
GetProcAddress(hCodigoDll, "asciiBinaryToInt"))
        {
            int result = (*ptrFuncAsciiToBinary)(binario);

            printf("Numero Binario: %d\n", result);
        }
        else
        {
            printf("ERROR: Routine not found!\n");
        }

        if (ptrFuncAsciiToHexa = (ASCII_TO_HEXA*)
GetProcAddress(hCodigoDll, "asciiHEXToInt"))
        {
            int result = (*ptrFuncAsciiToHexa)(hexa);

            printf("Numero Hexa: %d\n", result);
        }
        else
        {
            printf("ERROR: Routine not found!\n");
        }

        if (ptrFuncAsciiToDouble = (ASCII_TO_DOUBLE*)
GetProcAddress(hCodigoDll, "asciiToDouble"))
        {
            double result = (*ptrFuncAsciiToDouble)(floto);

            printf("Numero Double: %f\n", result);
        }
        else
        {
            printf("ERROR: Routine not found!\n");
        }
    }
    else
    {
        printf("ERROR: Library not found!\n");
    }
```

```
    FreeLibrary(hCodigoDll);
}
```

Result (Test Code 1)

```
B:\Development\GitHub\advanced-programming\hw13>test
Numero: 19
Numero: 51914
Numero: 234.540000
```

Result (Test Code 2)

```
B:\Development\GitHub\advanced-programming\hw13>test
Numero Binario: 215
Numero Hexa: 255
Numero Double: 123.450000
```