॥वसुधैव कुटुम्बकम्॥

SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Symbiosis International (Deemed University)

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Founder: Prof. Dr. S. B. Mujumdar, M. Sc., Ph. D. (Awarded Padma Bhushan and Padma Shri by President of India)

Assignment No. 05

Subject:	Compiler Construction Lab
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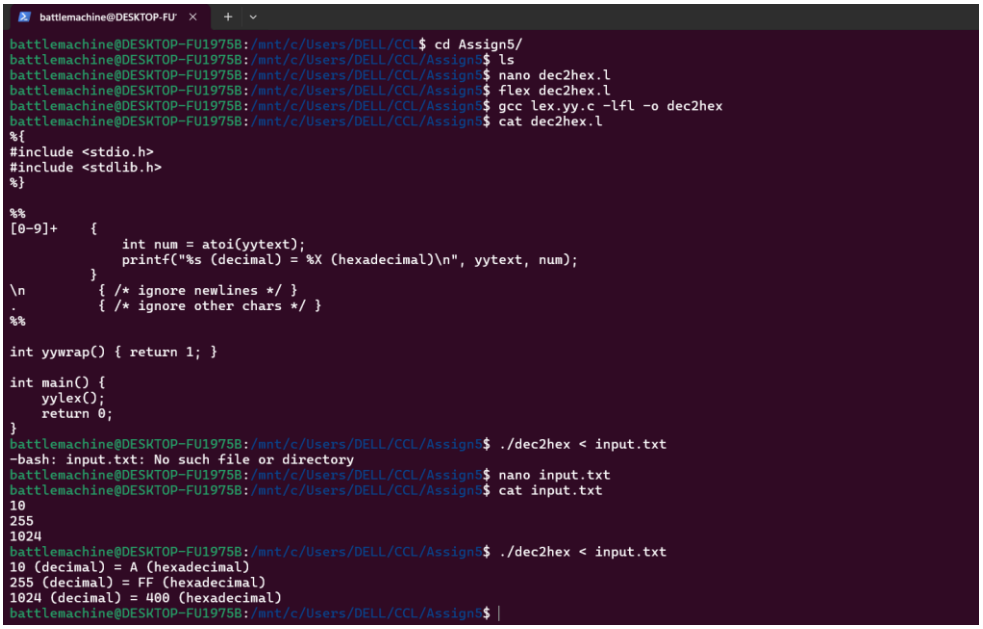
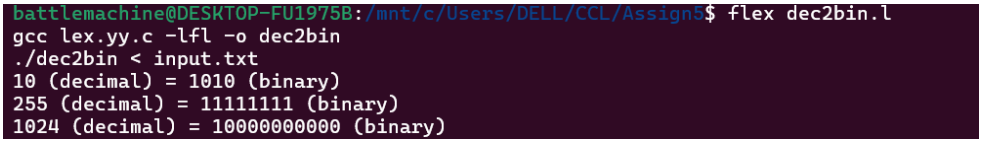
Branch	CSE B2, Batch (2022-26)
Academic Year & Semester	2022-26
Date of Performance	28/08/2025
Title of Assignment:	Conversion of decimal to hexadecimal number in a file.
Practice Questions	1. Write a LEX program for conversion of decimal to hexadecimal number in a file. 2. Write a LEX program for decimal to binary conversion.

Source Code	**1.**
	%{
	#include <stdio.h>
	#include <stdlib.h>
	%}
	
	%%
	[0-9]+ {
	int num = atoi(yytext);
	printf("%s (decimal) = %X (hexadecimal)\n", yytext, num);
	}
	\n { /* ignore newlines */ }
	. { /* ignore other chars */ }
	%%
	
	int yywrap() { return 1; }

```
int main() {
   yylex();
   return 0;
}
```

2.

```
%{
#include <stdio.h>
#include <stdlib.h>

// function to convert decimal to binary
void printBinary(int n) {
   if (n == 0) {
      printf("0");
      return;
   }
   int binary[32];
   int i = 0;
   while (n > 0) {
      binary[i++] = n % 2;
      n /= 2;
   }
   for (int j = i - 1; j >= 0; j--) {
      printf("%d", binary[j]);
   }
}
%}

%%
[0-9]+    {
            int num = atoi(yytext);
            printf("%s (decimal) = ", yytext);
            printBinary(num);
            printf(" (binary)\n");
          }
\n         { /* ignore newlines */ }
.          { /* ignore other chars */ }
%%

int yywrap() { return 1; }

int main() {
   yylex();
   return 0;
```

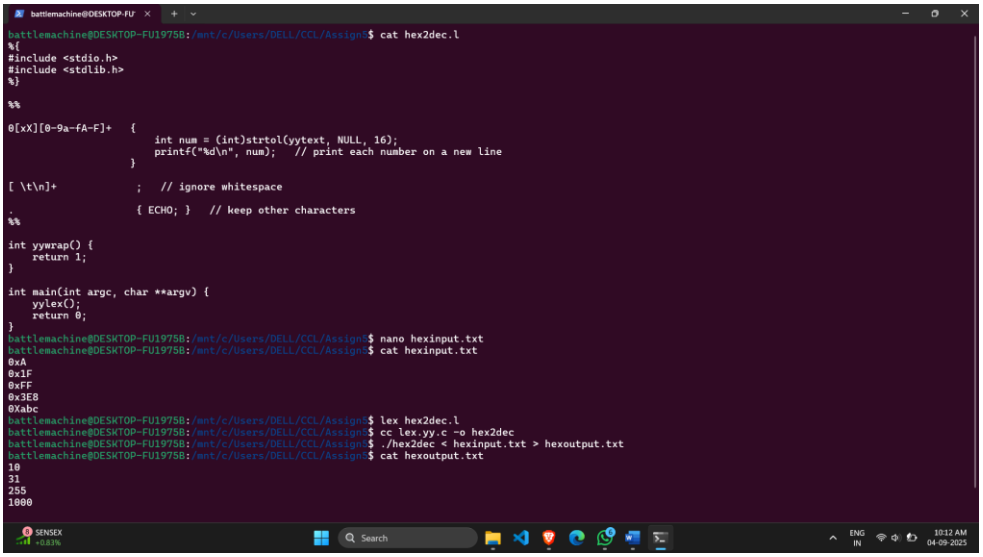
	}
Output Screenshot	1.  2.  

Post lab questions	1. Write a LEX program for Hexadecimal to Decimal conversion.

Code:

```
%{
#include <stdio.h>
#include <stdlib.h>
%}

%%

0[xX][0-9a-fA-F]+   {
                        int num = (int)strtol(yytext, NULL, 16);
                        printf("%d\n", num);   // print each number on a new line
                    }

[ \t\n]+            ;   // ignore whitespace

.                   { ECHO; }   // keep other characters
%%

int yywrap() {
   return 1;
}

int main(int argc, char **argv) {
   yylex();
   return 0;
}
```

Output:



Conclusion	These LEX programs show how simple rules can automate number system conversions. They highlight the efficiency of lexical analysis in scanning, recognizing patterns, and transforming input seamlessly.