NATIONAL UNIVERSITY OF SCIENCES AND TEHNOLOGY

CS-114-FUNDAMENTAL OF PROGRAMING

LAB MANUAL # 5

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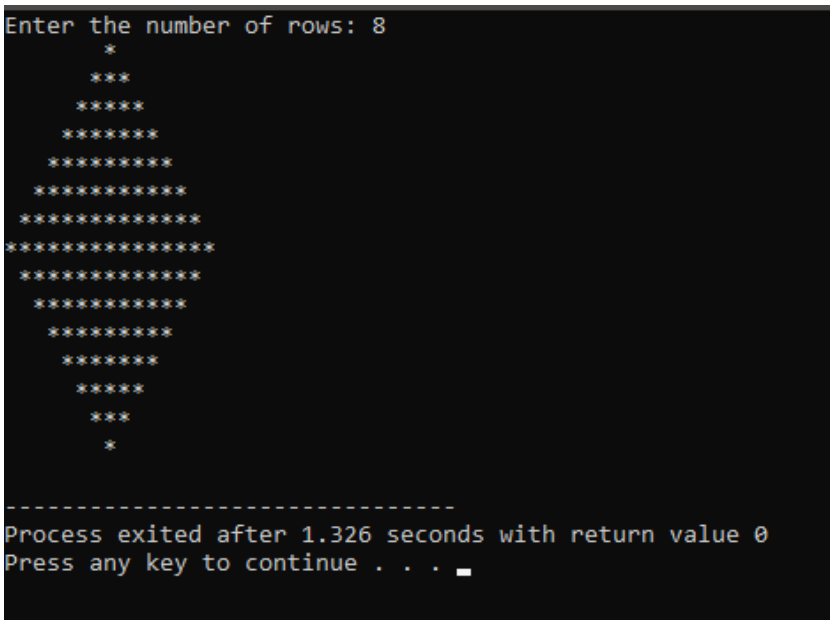
TASK # 1

CODE:

```
#include <iostream>
using namespace std;

int main() {
 int rows, i, j;

 cout << "Enter the number of rows: ";
 cin >> rows;

 // Upper triangle
 for (i = 1; i <= rows; i++) {
  for (j = 1; j <= rows - i; j++) {
   cout << " ";
  }

  for (j = 1; j <= 2 * i - 1; j++) {
   cout << "*";
  }

  cout << endl;
 }

 // Lower triangle
 for (i = rows - 1; i >= 1; i--) {
  for (j = 1; j <= rows - i; j++) {
```

```
    cout << " ";
   }

   for (j = 1; j <= 2 * i - 1; j++) {
    cout << "*";
   }

   cout << endl;
  }

  return 0;
}
```

RESULT:



TASK # 2

CODE:

```
#include <iostream>
```

```
using namespace std;

int hcf(int a, int b) {
  while (b != 0) {
    int temp = b;
    b = a % b;
    a = temp;
  }
  return a;
}

int lcm(int a, int b) {
  return (a * b) / hcf(a, b);
}

int main() {
  int n1, n2;
  cout << "Enter a number: ";
  cin >> n1;
  cout<<"Please enter another number: ";
  cin>>n2;

  int hcf = 1;
  for (int i = 1; i <= min(n1, n2); i++) {
    if (n1 % i == 0 && n2 % i == 0) {
      hcf = i;
    }
```

```
  }

  int lcm = (n1 * n2) / hcf;
  cout << "The LCM of " << n1 << " and " << n2 << " is " << lcm << endl;

  return 0;
}
```

RESULT:

```
Enter a number: 10
Please enter another number: 110
The LCM of 10 and 110 is 110

--------------------------------
Process exited after 12.99 seconds with return value 0
Press any key to continue . . .
```

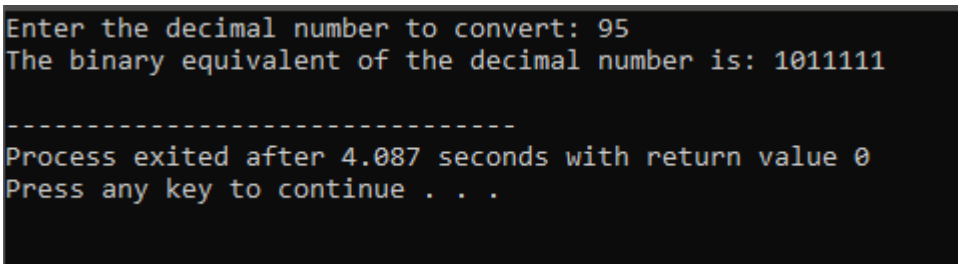
TASK # 3

CODE:

```
#include <iostream>

using namespace std;

int main() {
  int decimal, binary = 0, remainder, product = 1;

  cout << "Enter the decimal number to convert: ";
  cin >> decimal;

  while (decimal != 0) {
```

```
    remainder = decimal % 2;
    binary = binary + (remainder * product);
    decimal = decimal / 2;
    product *= 10;
  }

  cout << "The binary equivalent of the decimal number is: " << binary << endl;

  return 0;
}
```

RESULT:



TASK # 3

CODE:

```
#include <iostream>
using namespace std;
int main() {
  int firstTerm, commonDifference, numberOfTerms, sum = 0;
cout << "Enter the first term of the Arithmetic Progression series: ";
  cin >> firstTerm;
cout << "Enter the common difference of the Arithmetic Progression series: ";
  cin >> commonDifference;
cout << "Enter the number of terms in the Arithmetic Progression series: ";
```

```
 cin >> numberOfTerms;
 for (int i = 0; i < numberOfTerms; i++) {
  sum += firstTerm + (i * commonDifference);
 }


 cout << "The sum of the Arithmetic Progression series is: " << sum << endl;


 return 0;
}
```

RESULT: