



Name: Jatin Prajapati

Roll No: 21BCP452D

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Division: 5th (G-10)

**#CNS (20CP320P)**

**PANDIT DEENDAYAL ENERGY UNIVERSITY**

**COMPUTER SCIENCE AND ENGINEERING DEPARTMENT**

Practical 3

* 1. Implementation of Extended Euclidean Algorithm

ExtendedEuclidean.c

*#include* <stdio.h>

*int* t1 = 0, t2 = 1, q, r, t;

*int* extendedEuclidean(*int* a, *int* b)

{

*while* (b != 0)

    {

        q = a / b;

        r = a % b;

        t = t1 - t2 \* q;

        t1 = t2;

        t2 = t;

        a = b;

        b = r;

    }

*return* a != 1 ? 0 : t1;

}

*int* main()

{

*int* a, b, result;

    printf("Inverse of: ");

    scanf("%d", &a);

    printf("With modulo: ");

    scanf("%d", &b);

    result = extendedEuclidean(b, a);

*if* (result == 0)

    {

        printf("Inverse does not exist\n");

*return* 0;

    }

*else* *if* (result < 0)

    {

        result += b;

    }

    printf("Inverse: %d\n", result);

*return* 0;

}

OUTPUT