

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Lab Report-3**

**Course Title: Cryptography and Network Security Lab**

**Course Code: CSE-432**

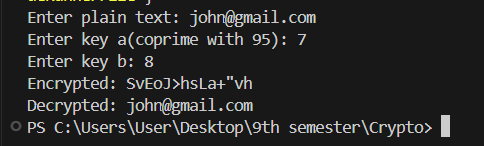
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| **Submitted By** | **Submitted To** |
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**Submission Date: 14.08.2025**

* **Experiment No: 03**
* **Experiment Name: Implementation of Affine Cipher Algorithm**
* **Code**

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| #include <iostream>  #include <string>  using namespace std;  const int M = 95;  int modInverse(int a, int m){  a = a%m;  for(int x=1; x<m; x++){  if((a\*x) % m==1) return x;  }  return -1;  }  string encrypt(string text, int a, int b){  string result = "";  for(char ch : text){  if(ch >= 32 && ch <= 126){  int x = ch - 32;  int enc = (a \* x + b) % M;  result += (char)(enc + 32);  } else {  result += ch;  }  }  return result;  }  string decrypt(string text, int a, int b){  string result = "";    int a\_inv = modInverse(a, M);  if(a\_inv == -1) return "Invalid 'a'!";  for(char ch : text){  if(ch >= 32 && ch <= 126){  int y = ch - 32;  int dec = (a\_inv \* (y - b + M)) % M;  result += char(dec + 32);  } else {  result += ch;  }  }  return result;  }  int main(){  string text;  int a, b;  cout <<"Enter plain text: ";  getline(cin, text);  cout <<"Enter key a(coprime with 95): ";  cin>>a;    cout<<"Enter key b: ";  cin>>b;  if(modInverse(a, M) == -1){  cout<<"a must be coprime with 95"<<endl;  return 1;  }  string cipher = encrypt(text, a, b);  cout <<"Encrypted: "<<cipher<<endl;  cout <<"Decrypted: "<< decrypt(cipher, a, b)<<endl;  return 0;  } |

* **Output:**

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