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IT 8761 - SECURITY LABORATORY

MODEL LAB EXAMINATION

QUESTION 8: Develop a java program to implement the Rail Fence Cipher with depth 5 and reapply the same algorithm with depth 3 on intermediate cipher and generate the final cipher text

CODE:

```
import java.util.*;
class Main {
 String getEncryptedData(String data, int numRails){
   char[] encrypted = new char[data.length()];
   int n=0;
   for(int k=0;k<numRails;k++){
     int index=k;
     boolean down=true;
     while(index<data.length()){
       encrypted[n++]=data.charAt(index);
       if(k==0||k==numRails-1){
         index=index+2*(numRails-1);
       }
       else if(down){
         index=index+2*(numRails-k-1);
         down=!down;
       }
       else{
         index=index+2*k;
         down=!down;
       }
     }
   }
   return new String(encrypted);
 }
 static void Print(String text,int key){
   int n=text.length();
   char matrix[][]=new char [key][n];
   for(int i=0;i<key;i++){
     for(int j=0;j<n;j++){
```

```
        matrix[i][j]='*';
      }
    }
    int row=0;
    int col=0;
    boolean dir_down=false;
    for(int i=0;i<text.length();i++){
      if(row==0)
        dir_down=true;
      else if(row==key-1){
        dir_down=false;
      }
      matrix[row][col++]=text.charAt(i);
      if(dir_down==true)
        row++;
      else{
        row--;
      }
    }
    StringBuilder result = new StringBuilder();
    for(int i=0;i<key;i++){
      for(int j=0;j<text.length();j++){
        System.out.print(matrix[i][j]+" ");
        result.append(matrix[i][j]);
      }
      System.out.println();
    }
  }
  public static void main(String[] args) {
    Scanner in = new Scanner(System.in);
    System.out.print("Enter Plaintext: ");
    String text=in.nextLine();
    System.out.println();
    Main railFenceCipher= new Main();
    String encrypted=railFenceCipher.getEncryptedData(text,5);
    Print(text, 5);
    System.out.println("Intermediate Cipher text: "+encrypted);
    System.out.println();
    String finalcipher=railFenceCipher.getEncryptedData(encrypted,3);
    Print(encrypted,3);
```

```
    System.out.println("Final Cipher text: "+ finalcipher);
    System.out.println();
  }
}
```

OUTPUT :