

## Lab Assignment 2:

1. WAP to find the solutions of equations:
  - a.  $14x \equiv 12 \pmod{18}$
  - b.  $3x + 4 \equiv 6 \pmod{13}$
2. WAP to implement Additive cipher (key=20), Multiplicative cipher (key=15) and affine cipher (key=15, 20). To encrypt the message "this is an exercise".
3. WAP to perform brute force attack on the cipher text "dvvkzeczssprkkve".
4. WAP to perform brute force attack on the cipher text "YMJHFJXFWHNUMJWNXTSJTKYMJJFWQNJXYPSTBSFSIXNRUQJXYHNUMJWX".
5. WAP to use brute force attack to decipher the message :

XPALASXYFGFUKPXUSOGEUTKCDGFXANMGNVS

Assume Affine cipher is used and "ab" is encrypted by "GL".

6. WAP to perform statistical attack on the ciphertext:  
"ymnxhtzwxjfnrxytuwtanijdtzbnymijyfnqjipstbqjiljtknrtwyfsyyjhmstqtljnxfsifuuqnh  
fyntsymfyfwjzxijsymjnsyjsyjiyzytymjgwtfisfyzwjtkymnxknjqiyjmhtzwxjhtajwxtsqdx  
jqjhyjiytunhxtkthzxnslnkwxysxtrjfiashjiytunhxnsnsyjsyjiyhmstqtljnxjlbwjqjxx  
qfsxrtgnqjnsyjsyjrzyqynhfyfsiymsfxjqjhyntstkhzwwjsyfsisjcyjsjwfyntsfuuqnhfyn  
tsxfsixjwanhbjxjluunuyaatanudtzbnnqqjfwsmbyjnsyjsyjbtpxfsimtbxjwanhbjxfsifuuqn  
hfyntsfwjwutanijiytzxjwxtkymjnsyjsyymnxpstbqjiljbnqqmjqudtz"
7. WAP to perform statistical and pattern attack over the ciphertext:  
"ziolegxkltqodlzfzkgxetngxzgizthkfoehstlqfrzteifoxtlgyltexkofuegdhxztklqfregd  
hxztkftzvgkalvoziygexlgfztkftzltexkoznzitegxkltoltytezoctsnlsozofzgzvghqkzlyo  
klzofzkgxreofuzitzitgkngyeknhzgukqhinoxesxrofuigvdqfnesqlloeqsqfrhghxsqksugkozid  
lvgkaturtklqrouozqsloufqzxtlqfrltegrhkgcorofurtzqoslyktqsofztkftzltexkoznhkgz  
gegslqsugkozidlqfrziktqzltuohltecokxltlyoktvqsslitfetngxvossstqkfwgzizitgktzoeqsq  
lhtezyegdhxztqkfrftzvgkaltekoznqlvtssqligvziqzzitgknolqhhsotrofzitoftkftzliol  
afgvstrutvossitshngxofrtloufofuqfrtctsghofultexktqhhsoeqzogflqfrftzvgkahkgzgegsl  
qlvtssqlwxosrofultektftzvgkal"