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3.)

```
def generateKey(string, key):
    key = list(key)
    if len(string) == len(key):
        return(key)
    else:
        for i in range(len(string) - len(key)):
            key.append(key[i % len(key)])
    return("".join(key))

def cipherText(string, key):
    cipher_text = []
    for i in range(len(string)):
        x = (ord(string[i]) + ord(key[i])) % 26
        x += ord('A')
        cipher_text.append(chr(x))
    return("".join(cipher_text))
```

```
def originalText(cipher_text, key):
    orig_text = []
    for i in range (len (cipher_text)):
        x = (ord (cipher_text[i]) - ord (key[i] + 26) % 26
        x += ord ('A')
    orig_text.append(chr(x))
    return ("".join(orig_text))

if __name__ == "__main__":
    string = "Cryptography"
    keyword = "Monarchy":
    key = generateKey (string, keyword)
    cipher_text = cipherText (string, key)
    print ("Ciphertext :", cipher_text)
    print ("Original / Decypled Text :")
        originalText (cipher_text, key)
```

4) import math, random

```
def generateOTP():
    digits = "0123456789"
    OTP = ""
    for i in range(4):
        OTP += digits[math.floor(random.random
        () * 10)]
    return OTP

if __name__ == "__main__":
    print("OTP of 4 digits:", generateOTP())
```

5) def encrypt (text, s):

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    result = ""

    for i in range (len (text)):
    char = text[i]

    if (char.isupper ()):
        result += chr ((ord (char) + s - 65) % 26 + 65)

    else
        result += chr ((ord (char) + s - 97) % 26 + 97)

    return result

text = "Attack from North"

s = 4
print "Text :" + text
print "Shift by:" + str (s)
print "Cipher :" + encrypt (text, s)
```