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"""mthorman_crypto.py
   CSCI-23000
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   Create a program that assists in a basic form of cryptography, a substition
cypher.
   Write a program that will accept a phrase and convert it into a code by
substituting
   letters according to a key.
   """
alpha = "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
key =   "XPMGTDHLYONZBWEARKJUFSCIQV"

def main():
   keepGoing = True
   while keepGoing:
     response = menu()
     if response == "1":
       plain = input("text to be encoded: ")
       print(encode(plain))
     elif response == "2":
       coded = input("code to be decyphered: ")
       print (decode(coded))
     elif response == "0":
       print ("Thanks for doing secret spy stuff with me.")
       keepGoing = False
     else:
       print ("I don't know what you want to do...")

def menu():
   """ prints out the menu, and asks user to choose
       returns that choice """

   print ("""
   SECRET DECODER MENU

   0) Quit
   1) Encode
   2) Decode
   """)
   response = input("Which will you choose: ")
   return response

def encode(plain):
   """ given plain text, convert each character to corresponding
       char of key and return encoded string """
   # begin with empty output
   output = ""
   #convert plain to all upper case
   plain = plain.upper()
   # go through plain one char at a time
   for currentChar in plain:
     #with the current char
     #if the currentChar is in alpha
     if currentChar in alpha:
       #find the location of that char in alpha -> position
       position = alpha.find(currentChar)

       #find corresponding char in key -> newChar
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        newChar = key[position]
        #append newChar to output
        output += newChar
    #return output
    return output

def decode(coded):
    output = ""  # begin with empty output
    coded = coded.upper()   # go through coded one char at a time
    for currentChar in coded: # for each char in key find the corresponding char in
alpha
         if currentChar in key: # accounts for chars only in key
             position = key.find(currentChar)
             newChar = alpha[position]
             output += newChar
    return output #returns output

if __name__ == "__main__":    #initiates main function
    main()
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