

a) Use o openssl para criar um par de chaves pública/privada para o algoritmo RSA com 2048 bits.

[illegible]

```

pratica > TP6 > info
1 ----BEGIN PUBLIC KEY-----
2 MIIBIjANBgkqhkiG9w0BAQEAAQCAwIIBCCgCAQAAeQwIARAGVqldVThQgR1
3 r-PLiG0tCgprAztZ1t3K0Q1z3h3pWpH/9p3D13JhVtE2PM3Jm4v9S3h
4 Zmhc0LV01x1tmNEtS2d3yV8f3rCbwZp1T6X3M1e0k0tYn1Vb3dA0d
5 x/2b01Xvs2UuNRQxntL7j17L1bQ0ntPc0k1rE1n3CqFF5Vd4nrQ6GvWbckHMB
6 13h18cpqAA3bwLvY0mXczrR0B181v0tqU3c5pvsMzV1v8/wbms1r3K+r5
7 H1605051Lch3zcwp2g1133prXvH80u0euQLCE3J4d4CL7BgGvsgvnt8t6G
8 FQDQ04B
9 ----END PUBLIC KEY-----
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pratica > TP6 > use
1 chive_privada.pem
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b) Visualize o conteúdo do arquivo referente a chave pública. Qual o valor do par (n,e) ?

```
C:\Users\jotam\Documents\GitHub\Information-security\pratica\TP6>openssl rsa -pubin -in chave_publica.pem -text -noout
Public-Key: (2048 bit)
Modulus:
    00:c7:fd:09:e3:c0:89:56:a0:5d:bd:31:f4:42:02:
    2b:ae:a3:22:81:f4:3a:60:2a:b4:a4:59:c8:66:e4:
    e4:49:64:3d:3a:2a:89:1c:19:cf:63:e8:7f:ea:92:
    43:f7:5b:f7:1f:e6:3c:98:8d:bd:32:d8:f9:31:bb:
    fd:e5:26:da:cf:a9:a1:72:82:2f:84:8c:6d:9a:e3:
    44:34:44:ec:65:d7:63:a9:80:5f:de:b7:1b:c2:e6:
    4f:ab:18:a2:4f:a9:09:31:d9:5e:6c:39:2d:ca:74:
    88:bc:12:5d:03:49:83:c7:fd:9b:d2:55:d5:b1:95:
    1a:35:14:07:c6:72:fb:8e:5e:cb:d5:b4:1b:9c:ba:
    44:a2:49:6b:11:39:e3:0a:a1:45:49:5e:1d:46:b6:
    90:e8:65:7c:c3:c1:a4:84:c0:57:94:98:62:f0:57:
    29:a8:00:23:6f:02:ef:bd:3d:16:9d:77:33:ad:1d:
    01:97:cd:6f:d0:9a:94:bb:70:a0:4a:9b:f4:b0:d6:
    6f:96:ff:3f:c1:b9:b9:d6:bd:ca:87:ea:f9:7e:26:
    d2:43:4e:65:95:c8:61:cc:2c:29:da:0d:62:dc:9a:
    4f:13:16:21:f3:4e:ae:35:eb:90:88:b7:31:10:98:
    c0:59:df:82:8b:b0:58:82:05:71:76:c3:08:f0:67:
    86:15
Exponent: 65537 (0x10001)

C:\Users\jotam\Documents\GitHub\Information-security\pratica\TP6>
```

n (módulo):

00:c7:fd:09:e3:c0:89:56:a0:5d:bd:31:f4:42:02:
2b:ae:a3:22:81:f4:38:60:2a:b4:44:59:c8:66:e4:
1c:97:34:6d:3a:ba:96:0c:19:1f:93:f4:71:41:ae:
43:f7:5b:f7:1f:e0:3c:98:8d:82:7d:f9:31:bb:d4:
64:67:5a:cf:af:3b:e8:dd:6d:40:61:7d:df:62:41:
44:34:44:a6:cf:e7:39:a9:5f:5d:e8:7b:1b:c2:e6:
e5:5a:44:cb:92:83:a3:90:9b:5d:39:2d:c4:22:3d:
3b:8c:12:5d:03:49:83:c7:fd:95:55:d5:b1:95:a5:
04:eb:ae:56:cd:ba:a7:37:fd:6a:85:49:b5:9e:54:
44:22:49:6b:11:39:2f:a4:35:49:d6:13:d4:06:b8:
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4f:13:61:f3:4e:ae:35:e8:90:88:7f:31:10:90:
86:15

e (expoente público):

65537 (0x10001)

c) Escreva uma mensagem curta para o professor, de até 2047 bits

```
C:\Users\jotam\Documents\GitHub\Information-security\pratica\TP6>echo Espero que eu passe em Seguranca da Informacao, pr  
eciso formar rsrs > mensagem.txt
```

d) Cifre a mensagem criada na letra c) com o RSA usando a chave pública do professor, disponível em "Geral", "Arquivos". Dica:

<https://www.openssl.org/docs/man1.1.1/man1/openssl-rsautl.html>

```
C:\Users\jotam\Documents\GitHub\Information-security\pratica\TP6>openssl pkeyutl -encrypt -pubin -inkey chave_publica_pr  
ofessor.pem -in mensagem.txt -out mensagem_cifrada.bin
```

