```
def acronym(s):
    acr = ''
    slen = 0
    while not slen == len(s):
        if s[slen].isupper():
            acr += s[slen]
        slen += 1
    return acr
```

2a.

Test cases:

```
>>> acronym('Graphics Interchange Format')
'GIF'
>>> acronym('COmmon Business-Oriented Language')
'COBOL'
>>> acronym('International Business Machines')
'IBM'
>>> acronym('Dead On Arrival'
SyntaxError: invalid syntax
>>> acronym('Dead On Arrival')
'DOA'
>>> acronym('American Telephone and Telegraph')
'ATT'
```

2b/c.

```
def N(x):
    row = 0
    col = 0
    count = 0
    while not count == x:
        if not col == x:
            if col == 0 or col == x-1 or row == col:
                print('*', end = '')
            else:
                print(' ', end = '')
            col += 1
        else:
            col = 0
            count += 1
            if not row == count:
                row += 1
                print()
```

Test Runs:

```
>>> N(6)
*     *
**    *
* *   *
*   * *
*    **
*     *
>>> N(4)
*   *
** *
* **
*   *
>>> N(10)
*         *
**        *
* *       *
*   *     *
*    *    *
*     *   *
*      *  *
*       * *
*        **
*         *
```

3.

```
def prod():
    running = True
    endsum = 1
    while running:
        try:
            user_input = input('Number: ')
            if user_input.isdigit():
                endsum *= int(user_input)
            else:
                return 'Undefined'
        except KeyboardInterrupt:
            running = False
    return 'The product is {}'.format(endsum)
```

Test case:

```
>>> prod()
Number: 123
Number: 321
Number:
'The product is 39483'
>>> prod()
Number: 3
Number: 5
Number: 7
Number:
'The product is 105'
>>> prod()
Number: 5
Number: 54
Number: 654
Number: jaldf
'Undefined'
>>> prod()
Number: 5
Number: 10
Number:
'The product is 50'
>>> prod()
Number: 0
Number: 100000
Number:
'The product is 0'
```

4.

```
def vote():
    dic = {}
    running = True
    total = ''
    while running:
        try:
            user_input = input('Name: ')
            if user_input == '':
                break
            if user_input not in dic:
                dic[user_input] = 1
            else:
                dic[user_input] += 1

        except KeyboardInterrupt:
            running = False

    for i in dic:
        total += '{} got {} vote(s) \n'.format(i, dic[i])
    return total
```

Test runs

```
>>> vote()
Name: Carson
Name: Brett
Name: Carson
Name: Test
Name: Hello
Name: Test
Name: Carson
Name:
'Carson got 3 vote(s) \nBrett got 1 vote(s) \nTest got 2 vote(s) \nHello got 1 v
ote(s) \n'
```

5 (bonus):

Entire code:

```
import re
from random import choice
def guess(fname):
    infile = open('innocents.txt' ,'r')
    text = infile.read()
    infile.close()

    words = re.split('\W+',text)
    running = True

    right = 0
    wrong = 0
    while running:
        w1 = choice(words)
        w2 = choice(words)
        w1count = 0
        w2count = 0
        try:
            user_input = input('Two words (1) {} and (2) {} from {} \n Which is more frequent, 1 or 2: '.format(w1, w2, fname))
            if (not user_input == '1') and (not user_input == '2'):
                print('Bye')
                break
            else:
                for word in words:
                    if word == w1:
                        w1count += 1
                    if word == w2:
                        w2count += 1
                if w1count > w2count:
                    if user_input == '1':
                        right += 1
                        print('That\'s right: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
                    if user_input == '2':
                        wrong += 1
                        print('Sorry, that is wrong: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
                if w2count > w1count:
                    if user_input == '2':
                        right += 1
                        print('That\'s right: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
                    if user_input == '1':
                        wrong += 1
                        print('Sorry, that is wrong: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
                if w1count == w2count:
                    print('Draw!: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
        except KeyboardInterrupt:
            print('Bye')
            break
    return 'You were right {} times and wrong {} times!'.format(right,wrong)
```

Chunk 1:

```
import re
from random import choice
def guess(fname):
    infile = open('innocents.txt' ,'r')
    text = infile.read()
    infile.close()

    words = re.split('\W+',text)
    running = True

    right = 0
    wrong = 0
    while running:
        w1 = choice(words)
        w2 = choice(words)
        w1count = 0
        w2count = 0
        try:
            user_input = input('Two words (1) {} and (2) {} from {} \n Which is more frequent, 1 or 2: '.format(w1, w2, fname))
            if (not user_input == '1') and (not user_input == '2'):
                print('Bye')
                break
            else:
```

Chunk 2:

```
for word in words:
    if word == w1:
        w1count += 1
    if word == w2:
        w2count += 1
if w1count > w2count:
    if user_input == '1':
        right += 1
        print('That\'s right: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
    if user_input == '2':
        wrong += 1
        print('Sorry, that is wrong: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
if w2count > w1count:
    if user_input == '2':
        right += 1
        print('That\'s right: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
    if user_input == '1':
        wrong += 1
        print('Sorry, that is wrong: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
if w1count == w2count:
    print('Draw!: {} occurs {} times, and {} occurs {} times'.format(w1,w1count,w2,w2count))
```

Chunk 3:

```
        except KeyboardInterrupt:
            print('Bye')
            break
    return 'You were right {} times and wrong {} times!'.format(right,wrong)
```

Test Runs:

```
>>> guess('innocents.txt')
Two words (1) faint and (2) straight from innocents.txt
 Which is more frequent, 1 or 2: 1
Sorry, that is wrong: faint occurs 5 times, and straight occurs 39 times
Two words (1) for and (2) never from innocents.txt
 Which is more frequent, 1 or 2: 1
That's right: for occurs 1176 times, and never occurs 273 times
Two words (1) the and (2) and from innocents.txt
 Which is more frequent, 1 or 2: 2
Sorry, that is wrong: the occurs 11598 times, and and occurs 8319 times
Two words (1) said and (2) of from innocents.txt
 Which is more frequent, 1 or 2: 2
That's right: said occurs 378 times, and of occurs 7344 times
Two words (1) any and (2) to from innocents.txt
 Which is more frequent, 1 or 2:
Bye
'You were right 2 times and wrong 2 times!'
```

```
>>> guess('innocents.txt')
Two words (1) of and (2) his from innocents.txt
 Which is more frequent, 1 or 2: 1
That's right: of occurs 7344 times, and his occurs 990 times
Two words (1) constant and (2) the from innocents.txt
 Which is more frequent, 1 or 2: 2
That's right: constant occurs 7 times, and the occurs 11598 times
Two words (1) that and (2) behind from innocents.txt
 Which is more frequent, 1 or 2: 1
That's right: that occurs 2478 times, and behind occurs 36 times
Two words (1) to and (2) with from innocents.txt
 Which is more frequent, 1 or 2: 1
That's right: to occurs 4444 times, and with occurs 1612 times
Two words (1) as and (2) X from innocents.txt
 Which is more frequent, 1 or 2: 2
Sorry, that is wrong: as occurs 1114 times, and X occurs 3 times
Two words (1) He and (2) rascals from innocents.txt
 Which is more frequent, 1 or 2: 1
That's right: He occurs 376 times, and rascals occurs 8 times
Two words (1) Articles and (2) in from innocents.txt
 Which is more frequent, 1 or 2: 2
That's right: Articles occurs 1 times, and in occurs 3571 times
Two words (1) plain and (2) happy from innocents.txt
 Which is more frequent, 1 or 2: 2
That's right: plain occurs 39 times, and happy occurs 48 times
Two words (1) in and (2) Certain from innocents.txt
 Which is more frequent, 1 or 2: 2
Sorry, that is wrong: in occurs 3571 times, and Certain occurs 1 times
Two words (1) thousand and (2) story from innocents.txt
 Which is more frequent, 1 or 2: dsafdsaf
Bye
'You were right 7 times and wrong 2 times!'
```