Write program fragments (i.e., you do not need to write complete programs) that read a line of input as a `String` and print:

a. Only the uppercase letters in the `String`

```
1.  out.println("Enter a string: ");
2.          String enter = in.nextLine();
3.          char[] word = new char[enter.length()];
4.          String caps = "";
5.          for (int i = 0; i < enter.length()-1; ++i) {
6.              word [i] = enter.charAt(i);
7.              if (Character.isUpperCase(enter.charAt(i))) {
8.                caps = caps + enter.charAt(i);
9.              }
10.         }
11.         out.print(caps);
```

b. Every second letter of the `String`

```
1.  out.println("Enter a string: ");
2.          String enter = in.nextLine();
3.          char[] word = new char[enter.length()];
4.          String caps = "";
5.          for (int i = 1; i < enter.length()-1; i += 2) {
6.              word [i] = enter.charAt(i);
7.                caps = caps + enter.charAt(i);
8.          }
9.          out.print(caps);
```

c. The `String` with all vowels replaced by an underscore

```
1.  out.println("Enter a string: ");
2.          String enter = in.nextLine(); //user enters a string
3.          char[] word = new char[enter.length()]; //filling the letters into
    array
4.          String caps = "";
5.          String vow = ""; //this will be the word without the vowels
6.          String vOwelz = "oeuiay";
7.          char[] vowel = new char[vOwelz.length()];
8.          for (int i = 0; i < vOwelz.length(); ++i) {
9.          vowel[i] = vOwelz.charAt(i);
10.         }
11.         for (int i = 0; i <= enter.length() -1; ++i) {
12.               int k = 0;
13.               word [i] = enter.charAt(i);
14.               while (k <= vOwelz.length() -1) {
15.                     if (word[i] == vowel[k])
16.                           word[i] = '_';
17.                     ++k;
18.               }
19.               vow = vow + word[i];
```

```
        }
        out.print(vow);
```

d. The number of vowels in the `String`

```
out.println("Enter a string: ");
        String enter = in.nextLine(); //user enters a string
        char[] word = new char[enter.length()]; //filling the letters into array
        String caps = "";
        String vow = ""; //this will be the word without the vowels
        String vOwelz = "oeuiay";
        int a = 0;
        char[] vowel = new char[vOwelz.length()];
        for (int i = 0; i < vOwelz.length(); ++i) {
        vowel[i] = vOwelz.charAt(i);
        }
        for (int i = 0; i <= enter.length() -1; ++i) {
             int k = 0;
             word [i] = enter.charAt(i);
             while (k <= vOwelz.length() -1) {
                   if (word[i] == vowel[k])
                         ++a;
                   ++k;
             }
             vow = vow + word[i];
        }
        out.println("There's " + a + " vowels in that string.");
```

2.

```
int[] a = { 1, 2, 3, 4, 5, 4, 3, 2, 1, 0 };
```

What are the contents of the array `a` after the following loops complete?

a. `int[] a = { 1, 1, 1, 1, 1, 1, 1, 1, 1, 1 };`

```
int i = 1;
while (i < 10) {
    a[i] = a[i - 1];
    i++;
}
```

b. `int[] a = { 1, 0, 0, 0, 0, 0, 0, 0, 0, 0 };`

```
int i = 9;
while (i > 0) {
    a[i] = a[i - 1];
    i--;
}
```

c.
```
int[] a = { 1, 1, 1, 1, 1, 1, 1, 1, 1, 0 };
1 int i = 0;
2 while (i < 9) {
3     a[i] = a[i + 1];
4     i++;
5 }
```

d.
```
int[] a = { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 };
1 int i = 8;
2 while (i >= 0) {
3     a[i] = a[i + 1];
4     i--;
5 }
```

e.
```
int[] a = { 1, 3, 6, 10, 15, 19, 22, 24, 25, 25 };
1 int i = 1;
2 while (i < 10) {
3     a[i] = a[i] + a[i - 1];
4     i++;
5 }
```

f.
```
int[] a = { 1, 0, 3, 0, 5, 0, 3, 0, 1, 0 };
1 int i = 1;
2 while (i < 10) {
3     a[i] = 0;
4     i = i + 2;
5 }
```

g.
```
int[] a = { 1, 2, 3, 4, 5, 1, 2, 3, 4, 5 };
1 int i = 0;
2 while (i < 5) {
3     a[i + 5] = a[i];
4     i++;
5 }
```

h.
```
int[] a = { 1, 1, 2, 3, 4, 4, 3, 2, 1, 0 };
1 int i = 1;
2 while (i < 5) {
3     a[i] = a[9 - i];
4     i++;
5 }
```