Before you begin: you may take advantage of inbuilt functions. You do not have to try to replace them. The following exercises are meant to make you look for tools that can do as much of the job for you as possible.

[A 1.1] Define a function `wrap` that takes two inputs, strings x and y, and returns $x^\frown\texttt{c}^\frown y$. Which types do the following expressions have: `wrap "ab" "af"`, `wrap "ab"`, and `wrap`?

[A 1.2] Define a function d that takes a string x and returns $x^\frown x$ (x appended to itself). Next define a function that takes a list $[x_1; x_2; \ldots; x_n]$ of strings, and returns $[d(x_1); d(x_2); \ldots; d(x_n)]$. Write down the types that OCaML assigns to these functions.

[A 1.3] Write a function that takes a string and changes upper case letters into lower case and lower case letters into upper case.

[A 1.4] The **Fibonacci numbers** are defined as follows. $F(0) := 0$, $F(1) := 1$ and for $i \geq 0$: $F(i+2) := F(i) + F(i+1)$. Write a program that computes $F(n)$ with n given as input. Give the type of F. What is the value of $f(23)$?