

## Quiz 1 from Spring 2021 (Practice)

STUDENT NAME

### Q1 Pattern Matching

4 Points

Given a function `findSecond` and the examples below, fill in the missing parts of the function.

```
let findSecond lst =  
  match lst with  
  | ___A___ -> None  
  | ___B___ -> None  
  | ___C___ -> ___D___  
;;
```

Example:

```
findSeond [] = None  
findSeond [10] = None  
findSeond [10;20;30] = Some 20
```

A

B

C

D

### Q2 Fill in the blank

2 Points

```
List.map (_____ ) = [1;2;3;4;5] = [false;true;false;true;false]
```

Enter your answer here

Save Answer

### Q3 OCaml Typing

2 Points

Write an OCaml expression of the following type without using type annotations:

```
('a -> 'b) -> 'a -> 'b
```

Enter your answer here

Save Answer

### Q4 OCaml Typing

2 Points

Write an OCaml expression of the following type without using type annotations:

```
float -> float -> (int * int) list
```

Enter your answer here

Save Answer

### Q5 OCaml Fill In The Blank

5 Points

You are desperately searching for a PS5 and have come across a handy database where you can check if a store has a PS5 in stock. However, this database uses OCaml records and types to structure information, and it's your job to write the appropriate functions to find which stores have a PS5.

The `store` type is an OCaml record that is defined as follows:

```
type store = {store_id: string; ps5_in_stock: bool}
```

Here are the type definitions for `map`, `fold_left`, and `fold_right`:

```
map : ('a -> 'b) -> 'a list -> 'b list
fold_left : ('a -> 'b -> 'a) -> 'a -> 'b list -> 'a
```

```
fold_right: ('a -> 'b -> 'b) -> 'a list -> 'b -> 'b
```

Given a list of `stores`, fill in the blanks so that the `store_quantity` function will return the number of stores that have a PS5 in stock.

For example:

```
store_quantity [
  {store_id="target_01"; ps5_in_stock=true};
  {store_id = "walmart_01"; ps5_in_stock = false};
  {store_id = "gamestop_01"; ps5_in_stock = true}]
====> 2
```

```
let store_quantity stores =
fold_left ( _____ A _____ ) _____ B _____ stores;;
```

A

B

Save Answer

## Q6 OCaml Coding

5 Points

As you scour the Internet for information on PS5s, you run into another database which has slightly more information on PS5 stock - it now includes quantity at each store! However, the data is not nicely structured and is given to you as a list of tuples.

For example: `[("target_0101", 5); ("walmart_0101", 3); ("gamestop_0101", 1)]`

Write a function `find_large_stores`, which takes an `order:int`, a `(string * int) list` of stores and quantities, and returns the list of stores that have enough PS5s (`quantity >= order`) for the `order`

For example:

```
find_large_stores 3 [("target_0101", 5); ("walmart_0101", 3);
  ("gamestop_0101", 1)
]
==> [ "target_0101"; "walmart_0101"
```

Save Answer

Save All Answers

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