Section 3 Coding Solutions

For a given company, how much did that company spend in total?

```python
    def total_costs(expenditures, company):
        '''
        Given a company's name (string) and a list of expenditure reports,
        returns the total expenditures for that company.
        '''

        # Keep a running sum of expenditures for the given company
        total = 0
        for item in expenditures:
            if item['Company'] == company:
                total += item['Cost']
        return total
```

For a given company, how much did that company spend on payroll?

```python
    def payroll_costs(expenditures, company):
        '''
        Given a company's name (string) and a list of expenditures, returns the
        total payroll expenditures for that company.
        '''

        total = 0
        for item in expenditures:
            if item['Company'] == company and item['Purpose'] == 'payroll':
                total = total + item['Cost']
        return total
```

What are all the companies that made expenditures?

```python
    def all_companies(expenditures):
        '''
        Given a list of expenditures, returns a set of all the companies that
        had expenditures.
        '''
        companies = set()
        for item in expenditures:
            companies.add(item['Company'])
        return companies
```

Which company spent the least in total?

```python
    def lowest_costs(expenditures):
        '''
        Given a list of expenditure reports, returns the name of the company
        that spent the least money.
        '''

        # Get a set of all companies
        companies = all_companies(expenditures)
```

```
        # Get a dictionary from a company to that company's expenditures
        costs = {}
        for company in companies:
            costs[company] = total_costs(expenditures, company)

        # Keep a running min of the lowest expenditures
        min_name = None
        for company_name in costs:
            if min_name == None or costs[company_name] < costs[min_name]:
                min_name = company_name
        return min_name
```

What are the evil companies, if any, that didn't have any payroll expenditures (and so clearly aren't paying their employees). When you've finished this function, do a Google search on "google motto".

```
    def evil_companies(expenditures):
        '''
        Returns a set of evil companies (the ones that aren't paying their
        employees, the scum-sucking corporate jerks).
        '''

        companies = all_companies(expenditures)

        payrolls = {}
        for company in companies:
            payrolls[company] = payroll_costs(expenditures, company)

        evil_companies = set()
        for company in payrolls:
            if payrolls[company] == 0:
                evil_companies.add(company)

        return evil_companies
```