CSE 160 Section 3 Solutions

Question 1

```
{1, 6, 3, 9, 5, 2, 4}
```

Remember sets are unordered, so the order of the values above has no significance.

Question 2

```
print set_one & set_two
```

The intersection is: `{'a', 'c', 'd'}`

Question 3

```
62
KeyError: 0
{'low': 42, 'high': 58, 'precipitation': 0.5}
```

Question 3

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

```
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?

```
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?

```
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?

```
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
```