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#!/usr/bin/env python3

import json
import locale
import sys
from reports import generate as report
from emails import generate as email_generate
from emails import send as email_send

def load_data(filename):
  """Loads the contents of filename as a JSON file."""
  with open(filename) as json_file:
    data = json.load(json_file)
  return data


def format_car(car):
  """Given a car dictionary, returns a nicely formatted name."""
  return "{} {} ({})".format(
      car["car_make"], car["car_model"], car["car_year"])
```

```python
def process_data(data):
  """Analyzes the data, looking for maximums.

  Returns a list of lines that summarize the information.
  """
  locale.setlocale(locale.LC_ALL, 'en_US.UTF8')
  max_revenue = {"revenue": 0}
  sales = {"total_sales": 0}
  best_car = {}
  for item in data:
    # Calculate the revenue generated by this model (price * total_sales)
    # We need to convert the price from "$1234.56" to 1234.56
    item_price = locale.atof(item["price"].strip("$"))
    item_revenue = item["total_sales"] * item_price
    if item_revenue > max_revenue["revenue"]:
      item["revenue"] = item_revenue
      max_revenue = item
    # TODO: also handle max sales
    if item["total_sales"] > sales["total_sales"]:
      sales = item
    # TODO also handle the most popular car_year
    if not item["car"]["car_year"] in best_car.keys():
      best_car[item["car"]["car_year"]] = item["total_sales"]
    else:
      best_car[item["car"]["car_year"]] += item["total_sales"]

    all_values = best_car.values()
    max_value = max(all_values)
    max_key = max(best_car, key=best_car.get)
```

```
  summary = [
        "The {} generated the most revenue: ${}".format(
            format_car(max_revenue["car"]), max_revenue["revenue"]),
        "The {} had the most sales: {}".format(sales["car"]["car_model"], sales["total_sales"]),
        "The most popular year was {} with {} sales.".format(max_key, max_value),
            ]


  return summary


def cars_dict_to_table(car_data):
  """Turns the data in car_data into a list of lists."""
  table_data = [["ID", "Car", "Price", "Total Sales"]]
  for item in car_data:
    table_data.append([item["id"], format_car(item["car"]), item["price"], item["total_sales"]])
  return table_data
```

```python
def main(argv):
  """Process the JSON data and generate a full report out of it."""
  data = load_data("/home/student-00-e0f8d165ca2a/car_sales.json")
  summary = process_data(data)
  new_summary = '\n'.join(summary)
  print(summary)
  # TODO: turn this into a PDF report
  report('/tmp/cars.pdf', "Cars report", new_summary, cars_dict_to_table(data))
  # TODO: send the PDF report as an email attachment
  msg = email_generate("automation@example.com", "student-00-e0f8d165ca2a", "Sales summary for last month", new_summary, "/tmp/cars.pdf")
  email_send(msg)

if __name__ == "__main__":
  main(sys.argv)
```

Sales summary for last month

Message 1 of 3

From automation@example.com
To student-00-e0f8d165ca2a@example.com
Date Today 22:07

```
The Mercedes-Benz E-Class (2009) generated the most revenue: $22749529.02
The Integra had the most sales: 1192
The most popular year was 2007 with 21534 sales.
```

cars.pdf (~37 KB)