



## PHP Developer Coding Questions

### Package Contents:

- This instructions document (2 pages)
- Tab separated text file of 50 coordinates in Washington state (question 2)
- Map of counties in WA state
- Great circle formula
- SQL file of 10,000 employee records (question 3)

### Instructions:

These questions are designed to assess your skills across a variety of issues that we experience at SeniorHomes.com. The deliverables for each question are the source files required to produce any output required and the other files needed to run your program. If you get stuck on these, submit your answer and note where you got stuck at.

If your program requires any special setup on our end, please provide a readme file with instructions. Your answers will be assessed for correctness, efficiency, and code clarity.

### Coding Questions (3):

#### 1) Automobile Factory

We would like to create several different models of cars. There are standard options (model, transmission type), and then customers can customize their purchase by adding as many of the available add-ons as requested. Please make 5 cars and have them output to the screen their `start()`, `drive()`, and `off()` methods. Also, demonstrate any additional methods the car has as well, and use the "Heated Seats" option at least once.

Functions implemented by all cars:

- `start()`
  - When called, the car should output "starting car", what transmission it has, what model of car it is, then list all of the add-ons in the car (one per line).
- `drive()`
  - When called, the car should output "...vroom, vroom...reaching max speed of ... [car's max speed] ..."
- `off()`

- When called, the car should output “stopped!”

Transmission Type (one of these is required)

- Automatic
- Manual

Car Model (one of these is required)

- SUV (max speed 100 mph)
- Sports Car (max speed 150 mph)
- Mini-van (max speed 80 mph)

Extras (any of these can be added at run-time)

- Radio
  - Adds method `listen_to_music()` to the car
- Heated Seats
  - When `start()` is called, appends “..mmm toasty!...” to the output.
- Sun roof
  - Adds method `open_roof()` to the car
- GPS
  - Adds method `find_me()` to the car

## 2) Minimum distance through Washington counties

We want to visit all the counties in Washington State and were looking for the quickest way to do this (minimum miles). The data set provided (`counties.txt`) provides the center points of all the counties. To calculate the distance between two points, use the great circle distance formula. The output should be a list of the coordinates in the path taken and a summary line of how many miles were traversed in total.

## 3) Employees Database & Search

Use the included data file (`employees.sql`) and output the data set to a web page in a table. There are 10,000 records in the tab separated text file, and the column headings are `id`, `name`, and `bossId` in this file. Please paginate the results to 100/page, include a search box that allows the user to filter by first name, and include the following columns in your answer:

- Id
- Name
- Boss name
- Distance from CEO = how many bosses does this employee have to reach the CEO (for the CEO this is 0)
- Subordinate count = how many employees does this employee have working under him or her (fully recursive, the CEO has 9999)