

Developer recruitment test

The Original Cottage Company

For programming tasks please use PHP and/or JS

Q1

In PHP, give a code example of the following:

- A class
- An object
- Calling a method of a class
- Class inheritance
- Method overloading
- A singleton

Give an example of where a singleton may be useful.

Q2

In mathematics, the factorial of a non-negative integer n , denoted by $n!$, is the product of all positive integers less than or equal to n . They are normally written like this: $5!$. This would mean $5 * 4 * 3 * 2 * 1$. So $6!$ is 720 and $4!$ is 24.

Create a function which can output a factorial number.

Q3

Given an array of numbers write a function to return the mean and median values.

Q4

MySQL

Booking

BookingId

Price

SaleDate

CommissionPercentage

VATBandId

Extra

ExtraId

CommissionPercentage

VATBandId

Type ('Agency' or 'Shared')

BookingExtra

BookingId

ExtraId

Price

Quantity

SaleDate

VATBand
VATBandId
Name

VATRate
VATBandId
FromDate
ToDate
VATRate (percentage)

Given the above tables, with primary keys in bold, please write an efficient SQL query to return the following fields:

Booking id
VAT applicable to the booking itself
Total VAT applicable to the extras

Assume that:
VAT is calculated using the rate applicable at the sale date

For extras with type='Agency', VAT is included in the price of the extra

For the booking itself, and extras with type='Shared', VAT is added to the commission

The commission is price * commission percentage

All Primary Key fields are indexed, as are all Foreign Key fields

A Booking may have zero or more BookingExtras, which may have different SaleDates and/or VAT Bands

Q5

Create a function that validates UK postcodes.