HW 3: key

Question 1 (4 points)

Recall the elk dataset from HW 1. Investigate whether this dataset exhibits CSR. Justify your findings with a paragraph summary.

```
elk <- read_csv('https://raw.githubusercontent.com/Stat534/data/refs/heads/main/elk.csv')
```

```
Rows: 5924 Columns: 13
-- Column specification --------------------------------------------------------
Delimiter: ","
chr  (6): comments, sensor-type, individual-taxon-canonical-name, tag-local-...
dbl  (5): event-id, location-long, location-lat, migration-stage, study-spec...
lgl  (1): visible
time (1): timestamp

i Use `spec()` to retrieve the full column specification for this data.
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

Question 2

In this question we are going to simulate and fit a dataset with spatial covariates.

2.1 (3 points)

Create a set of at least two spatial covariates that will be related to your intensity surface. Note you'll want to explore the `im()` function which allows you to create a pixel-image. Plot your spatial covariates.

2.2 (3 points)

Construct and plot your intensity surface, this should use the covariates from 2.2 and at least one of the x or y coordinate values.

2.3 (3 points)

Determine and justify whether your surface exhibits CSR.

2.4 (3 points)

Model your intensity surface and summarize your results. How close are your parameter estimates?

2.5 (3 points)

Compare how well your estimated intensity surface matches with the true generated intensity surface.