Eindopdracht

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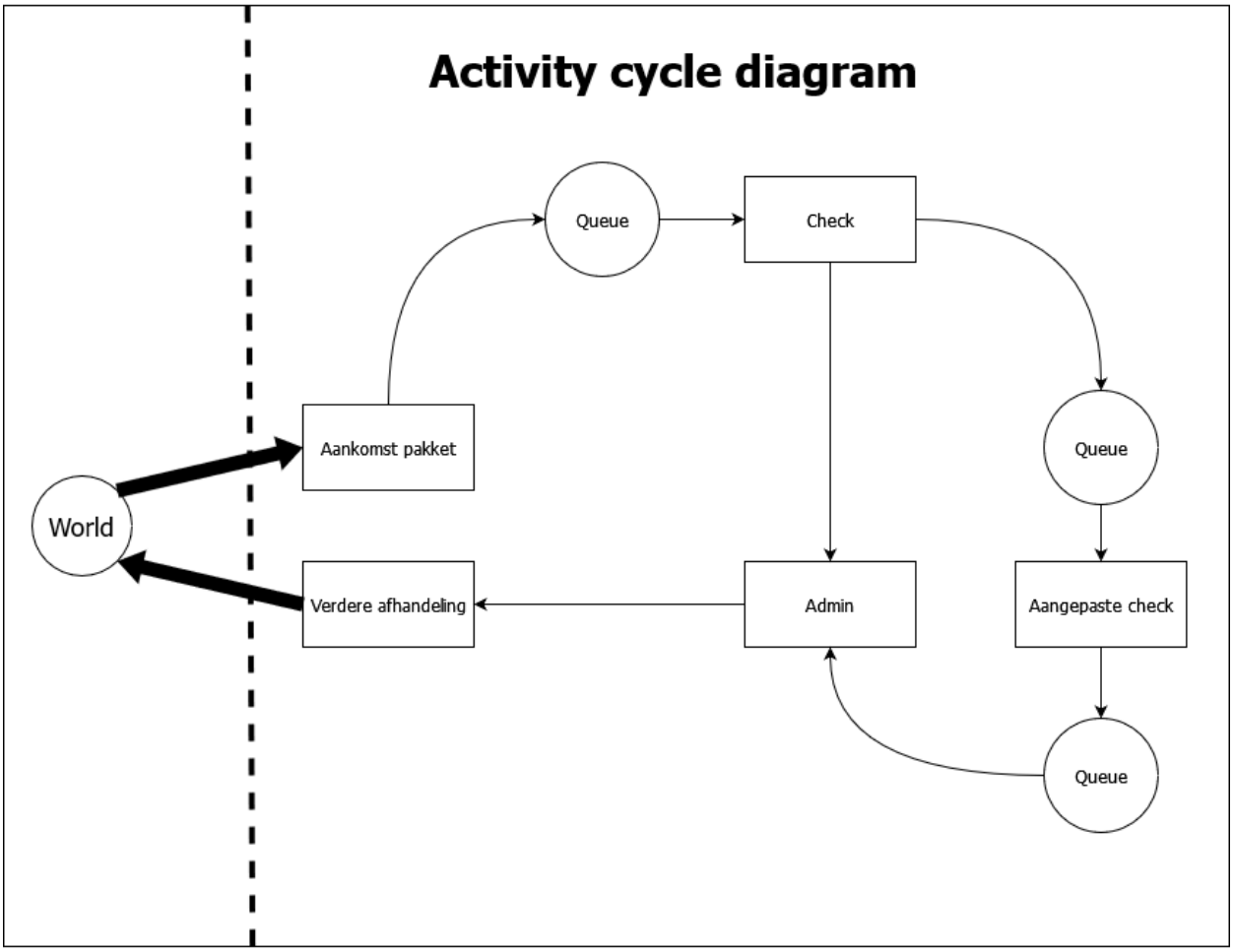
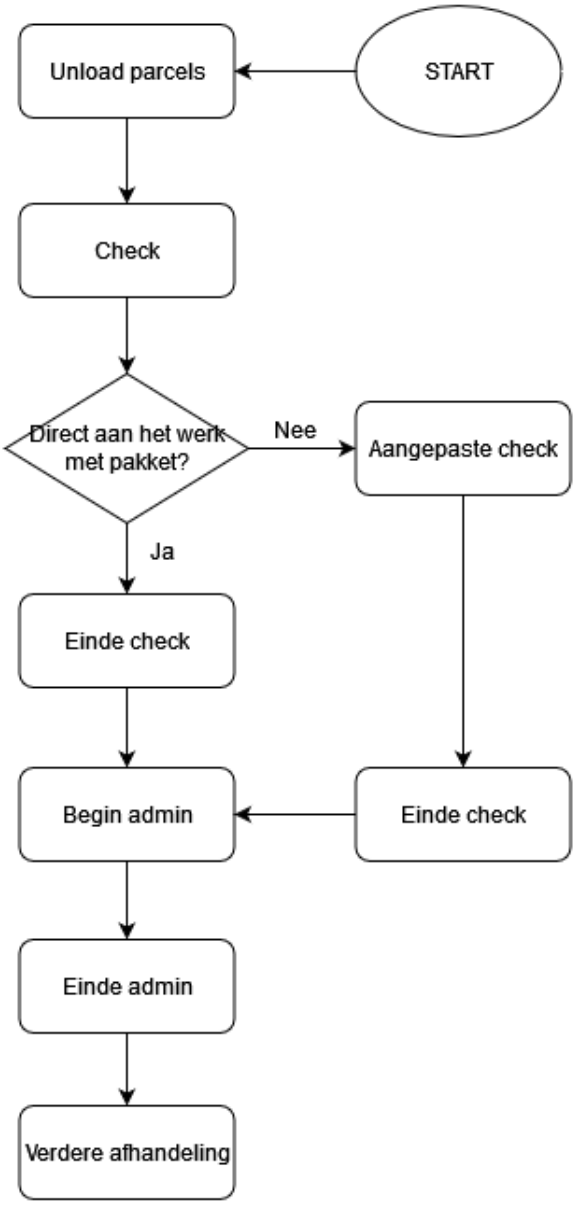
1. (2 points) Design a conceptual model for the analysis of the express company described in the case. Make a logic flow diagram and an activity cycle diagram. Note:the idea is to simulate multiple days. Construct a simulation model specificationon paper in which the simulated days are run sequentially, without any time in between.



Logic flow diagram



2 (a) The mean, and standard deviation of the checking time, admin time, wait time before checking, wait time before admin, and total throughput time of a parcel.

Express worker mean and sd of checking time in hours:

Mean:

```
0.08177864 Hours
```

```
Standard deviation:
```

```
0.01593596 Hours
```

Express worker mean and sd of wait time in hours:

```
Mean:
```

```
0.03481143 Hours
```

```
Standard deviation:
```

```
0.05387818 Hours
```

Admin worker mean and sd of checking time in hours:

```
Mean:
```

```
0.1308929 Hours
```

```
Standard deviation:
```

```
0.03200319 Hours
```

Admin worker mean and sd of wait time in hours:

```
Mean:
```

```
0.03481143 Hours
```

```
Standard deviation:
```

```
0.05387818 Hours
```

Mean and standard deviation of total throughput of a parcel in hours:

Mean:

```
0.2490325 Hours
```

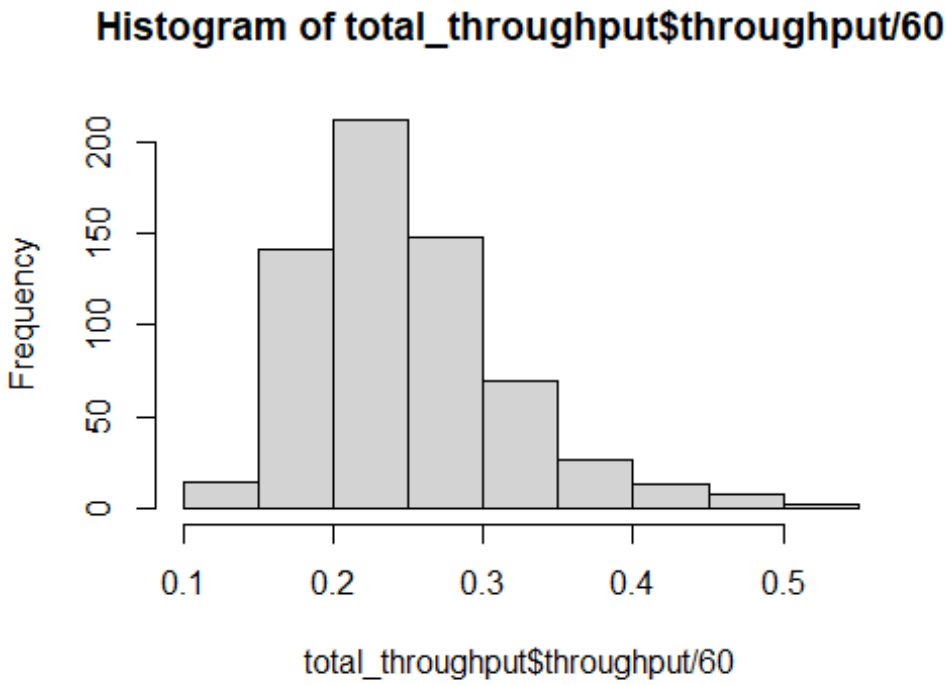
```
Standard deviation:
```

```
0.06722136 Hours
```

2 (b) A density histogram of the total throughput, checking time, admin time, wait time before checking and wait time before admin in the simulation.

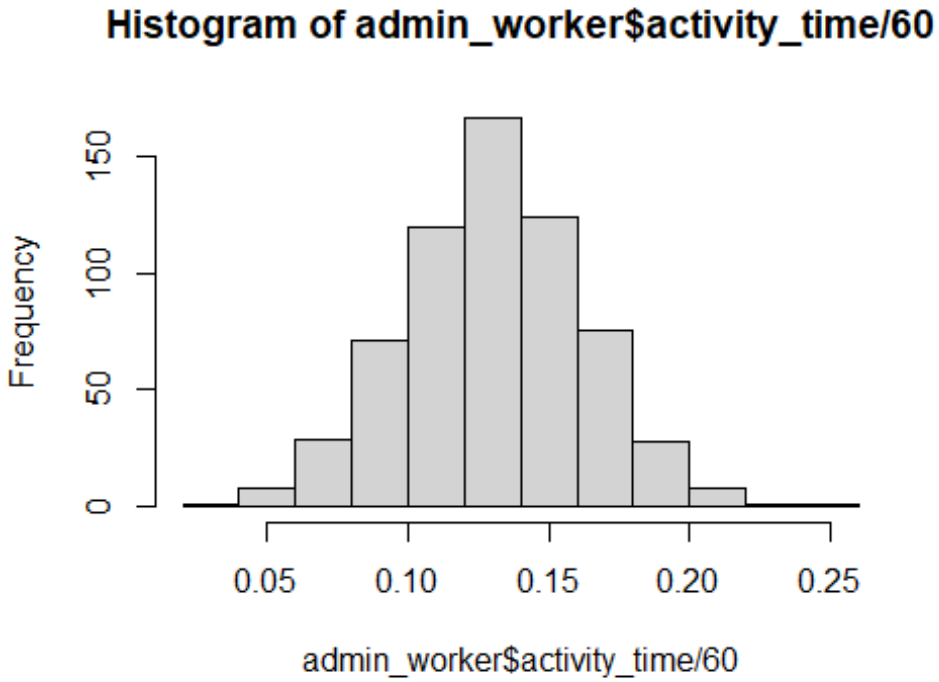
***All of these values have been converted to hours**

Histogram of total throughput:

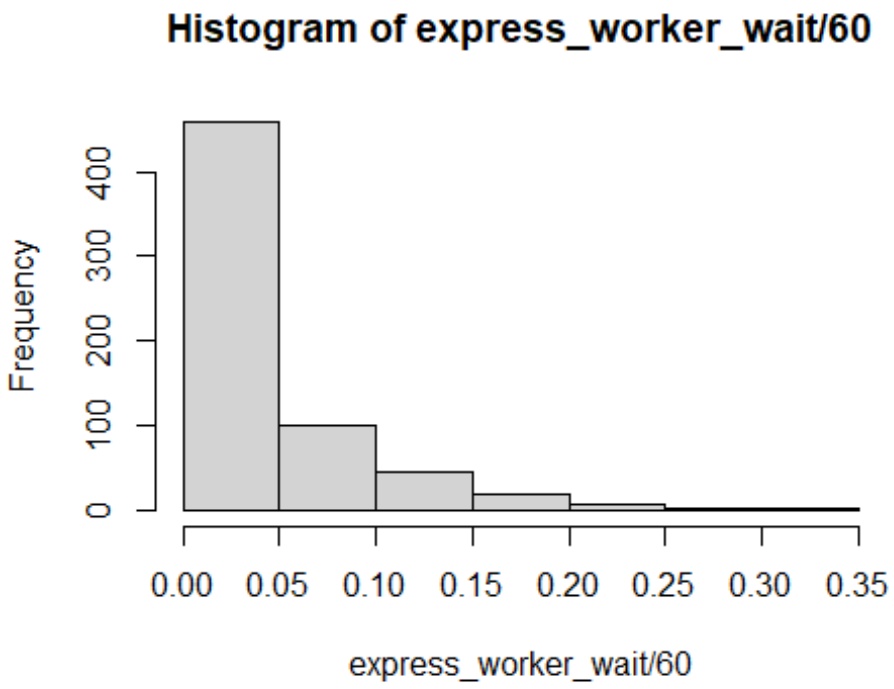


Histogram of checking time:

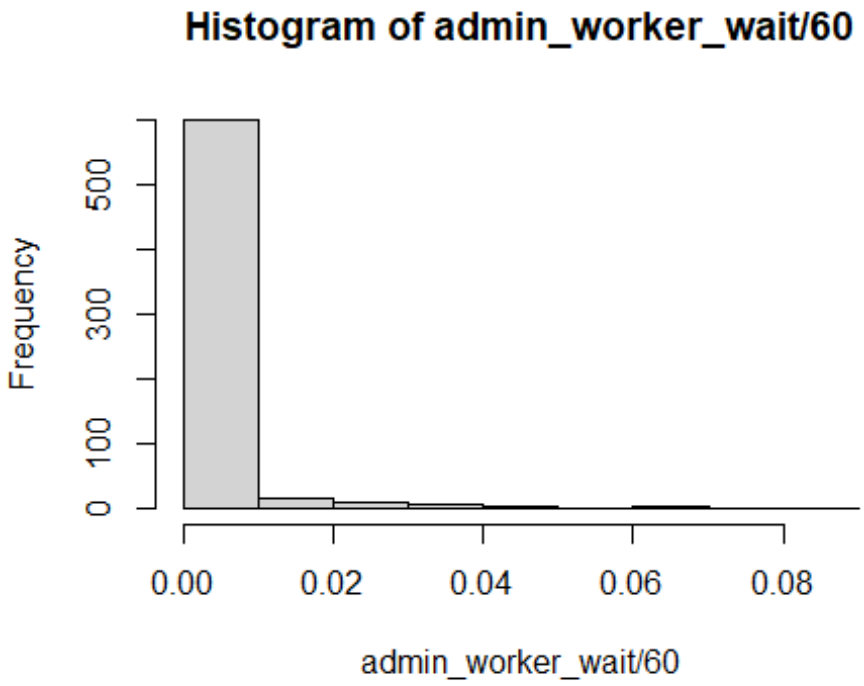
Histogram of admin time:



Histogram of wait time before checking:



Histogram of wait time before admin:



(c) The proportion of parcels sent out in time. Please also state the simulated amount of parcels and the runtime.

Proportion of parcels sent out on time:

```
100% of parcels are shipped out on time
```

Total number or parcels simulated:

```
634 parcels were simulated.
```

Total runtime in hours:

```
157.8866 hours
```