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The core thesis of the paper was easily reproducible. The authors provided a set of scripts that automatically execute the experiments, collect the data and plot the charts. The resulting figures were near identical to the submitted paper.

1 INTRODUCTION

The paper [1] studies a new approach to process Subgraph Matching, which is a common operation in graph data processing. There is a trend to utilize GPUs to accelerate this operation, however current algorithms tend to suboptimally use this resource and thus often terminate with the dreaded Out-of-Memory (OOM) error. The authors propose a combination of a Cuckoo-trie and alternating Breadth- and Depth-First search.

2 SUBMISSION

The submission contains the original paper and is accompanied by a zipped snapshot of the authors' github repository. Within the provided README.md one can find precise instructions, which version of what software has to be available.

Further available:

- Shell scripts to automate experiment execution and chart generation
- Data is hosted by the authors: https://hkustconnect-my.sharepoint.com/:f:/g/personal/xsunax_connect_ust_hk/Ei6Ln-Bjcgxli9NiRxd6CAkB2DRr99BF-ig4QvOpeYAwNQ

3 HARDWARE AND SOFTWARE ENVIRONMENT

Table 1 compares our machine to one of the employed servers from the authors. The authors used an 8-GPU environment, we had a single server at our disposal.

<table>
<thead>
<tr>
<th>Paper</th>
<th>Repro Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Intel® Xeon® CPU E5-2683 v4 @ 2.10GHz</td>
</tr>
<tr>
<td>cores</td>
<td>16 (32 Threads)</td>
</tr>
<tr>
<td>RAM</td>
<td>256GB</td>
</tr>
<tr>
<td>GPU</td>
<td>NVIDIA GeForce RTX 2080 Ti</td>
</tr>
</tbody>
</table>

4 REPRODUCIBILITY EVALUATION

The original experiments ran for about 60 days within an 8-GPU environment, our equipment featured 2 GPUs. Due to hardware and time constraints, we ran the experiments for the core claims, i.e. Figure 8 and Figure 9 of the original paper.

4.1 Process

The unzipped archive can be deployed as-is on the compute server. We had to manually download and unzip the 6 datasets from the authors’ sharepoint and move them to the correct directory. As a sidenote, our previously installed NVCC 11.7.0 was unable to run the code, however upgrading
We also examine the query time of individual queries in some experiments. Additionally, similar where it prompts **ERROR**. This little quirk can make it a bit irritating to distinguish very easy to recreate the corresponding experiments.

**4.2 Results**

Given sufficient time, the reproducibility environment replays all queries. We could easily comment-out all experiments, which do not belong to Figure 8 and Figure 9 to limit the overall runtime. Despite some minor runtime deviations between Figures 1b and 1d, we find that the original findings could be reproduced.

**5 SUMMARY**

The authors put much effort into the automation of the reproducibility setup, which made it overall very easy to recreate the corresponding experiments.

**REFERENCES**