### **Deliverable III**

**CYPHER ACTIONS**

1. Find top 10 books of a publisher based on user ratings

CYPHER ACTION QUERY –

MATCH (p:Publisher {publisher:$publisher\_name}) - [r:PUBLISHES] -> (b:Book) <- [w:REVIEWS] - (u:User)

WITH p,r,b,sum(u.rating) AS total\_rating

ORDER BY total\_rating DESC

RETURN p,b,r

LIMIT 10

Graphical user interface, text, application, Teams

Description automatically generated

Diagram

Description automatically generated

1. Find the author and publishers of book with title name

CYPHER ACTIONS QUERY –

MATCH (a:Author) - [r1:WRITES] -> (b:Book{title:$title}) <-[r2:PUBLISHES]- (p:Publisher)

RETURN a,r1,b,r2,p

Graphical user interface, text, application

Description automatically generated

Chart

Description automatically generated with low confidence

**GRAPH VISUALISATIONS**

1. Shortest Path Between the reviews from extremes of community IDs –

After running Louvain Community Detection algorithm in the ‘user-book-user’ projection, which is created by folding on the edge book, the community Ids of the nodes are stored in community variable in User node. Now it can be used to see how far the users are from the first and last community. This helps to visualize as many nodes are in between the extremities.

In this below example, the first community is 10 and the last community is 154554. This graph can help understand which author or book or common node that connects the extremes. So, in order to reach both the users for a marketing campaign the idea would be target the common node that connects both the users.

A picture containing chart

Description automatically generated

1. User nodes with highest page rank –

After running pagerank algorithm on the projection ‘user-book-user’ folded on edge book, pagerank is stored in ‘pagerank’ variable on User node. It is important to understand how the users with high page rank are connected to target only those influencers with high page rank. So, when the users with high page rank are visualized, it can be noticed that a single author connects all these users. So, if these users were targeted, the marketing campaign can better increase its probability of success.

Background pattern

Description automatically generated

1. User nodes with highest and lowest degree of centrality

Users with highest degree of centrality are connected to maximum of users and users with the lowest degree of centrality are connected to very few users. It is hard to reach to people with the lowest degree of centrality in general. In order to make a book marketing campaign a big success, it is essential to reach out to people with even low degree of centrality. So just like it is done in the first example, the shortest distance between users with high and low degree of centrality would help the publishers to reach out to and influence people who are mostly disconnect to the rest.

In this example user ‘20fd7b31a6445c3959594b61d3659274’ has the highest degree of centrality - 2813.0 and user ‘7074b9bd7e86e3eb85dfe2d5d4a85f8e’ has the lowest degree of centrality 0

Chart

Description automatically generated with low confidence