Neo4j cypher nodes not in a edge

The previous example created a path between the specified nodes. Note, that these newly created nodes and relationships are not connected to what was previously in the graph. To connect them to already existing data, bind the desired nodes and relationships to variables. These variables can then be passed along to subsequent clauses in a query that target pre-existing elements in the graph. Query MATCH (charlie:Person {name: 'Charlie Sheen'}), (oliver:Person {name: 'Oliver Stone'}) CREATE (charlie)-[:ACTED_IN {role: 'Bud Fox'}]->(wallStreet:Movie {title: 'Wall Street'})(wallStreet:Movie {title: 'Wall Street'}}(m), (n)-[:TO]->(m)With this generated graph, I run a query allowing cycles between two nodes with max path length (N) ranging from 1 to 7, and record number of returned paths and total time:MATCH p=(n)-[*..N]-(m) WHERE ID(n) = 1 AND ID(m) = 2 RETURN count(p)Results are growing exponentially:Compare it to a query that returns shortest paths only:MATCH p=allShortestPaths((n)-[*..10]-(m)) WHERE ID(n) = 1 AND ID(m) = 2 RETURN count(p)This query returns 3 paths immediately, irrespectively of the max path length.Note: Queries were run in cypher-shell instead of Neo4j browser to eliminate possible UI bottlenecks, with 4 GB Java heap size and warmed-up cache. Total time recorded is a sum of resultAvailableAfter and resultConsumedAfter times reported by Neo4j, averaged from 5 measurements, with min/max error bars.There is no simple recommendation, you should just be aware about this feature. Possible solutions to avoid this issue really depends on your use case, they include:model your graph without paralel edges or other possible cyclessearch by patterns that don't match existing cycles in your graphsearch with explicit edge direction MATCH p=({name: "A"})-[*..10]->({name: "C"}) RETURN psearch for shortest paths instead of any path MATCH p=allShortestPaths(({name: "A"})-[*..10]->({name: "C"})) RETURN pfilter out paths with repeated nodes (no performance gain, but helps with the usecase of matching nodes in exact distance) MATCH p=({name: "A"})-[*3]-({name: "C"}) WHERE length(nodes(p)) = length(apoc.coll.toSet(nodes(p))) RETURN pbuild a custom procedureOr get in touch with GraphAware to see how we can help you to performance-optimize your queries!Meet the authors Prior to the introduction of keyword-based specification of shortest path selection in Neo4j 5.21, the only available syntax for shortest paths were the functions shortestPath() and allShortestPaths(). They are similar to SHORTEST 1 and ALL SHORTEST, but with several differences: The path pattern is passed as an argument to the functions. The path pattern is limited to a single relationship pattern. To return results where the first and last node in the path are the same requires a change to the configuration setting dbms.cypher.forbid_shortestpath_common_nodes. The minimum path length, also called the lower bound of the variable-length relationship pattern, should be 0 or 1. Both functions will continue to be available, but they are not GQL conformant. Note that it is possible to pass a fixed-length path pattern (with a single relationship) to the path selector function, but doing so would not serve any purpose in discovering a shortest path. The pattern in the path selector function must be a variable-length relationship and not a quantified path pattern. Not allowed shortestPath((a)-[:R*1..5]-(b)) Not allowed shortestPath((a)-[:R*1..5]-(b)) shortestPath((a)-[:R*1..5]-(b)) There must be exactly one relationship pattern in the path pattern, and the lower bound should be 0 or 1. Allowed shortestPath((a)-[:R*1..5]-(b))->+(:B)) Not allowed shortestPath((a)-[:R*2..5]-(b)) shortestPath((:A)) allShortestPaths((a:A)-[:S*]->(:B), (a)-[:R*1..3]->(:C)) If the MATCH clause of the shortestPath() function includes a WHERE clause, this condition will act as a pre-filter: paths satisfying the WHERE clause are first found, and then those paths the shortest path is selected. Examples of pre-filters: MATCH p = shortestPath((a)-[*]-()) WHERE all(n in nodes(p) WHERE n.p < 42) MATCH p = shortestPath(()-[*]-()) WHERE all(r in relationships(p) WHERE r.p < 42) These contrast with WHERE clauses that are not part of the same MATCH clause. Example of post-filters MATCH p = shortestPath(()-[*]-()) WITH nodes(p) AS N WHERE all(n in N WHERE n.p < 42) If there is more than one path with minimum length, then shortestPath() function will return one of those paths non-deterministically. As allShortestPath() would return all of those paths, its results are deterministic. Return a single shortest path for each distinct pair of nodes matching (:A) and (:B): Return all paths equal to the shortest path length for each distinct pair of nodes matching (:A) and (:B): Free software license based on the AGPLv1 and GPLv3 GNU Affero General Public LicenseAuthorFree Software FoundationLatest version3PublisherFree Software Foundation, Inc.PublishedNovember 19, 2007SPDX identifierAGPL-3.0-or-laterAGPL-3.0-onlyDebian FSG compatibleYes[1]FSF approvedYes[2]OSI approvedYes[3][4]GPL compatibleYes (permits linking with GPLv3)[5]CopyleftYes,[2] incl. use over networkLinking from code with a different licenceOnly with GPLv3; AGPL terms will apply for the AGPL part in a combined work.[2][5]Websitewww.gnu.org/licenses/agpl.html The GNU Affero General Public License (GNU AGPL) is a free, copyleft license published by the Free Software Foundation in November 2007, and based on the GNU GPL version 3 and the Affero General Public License (non-GNU). It is intended for software designed to be run over a network, adding a provision requiring that the corresponding source code of modified versions of the software be prominently offered to all users who interact with the software over a network.[6] The Open Source Initiative approved the GNU AGPLv3[3] as an open source license in March 2008 after the company Funambol submitted it for consideration through its CEO Fabrizio Capobianco.[7] In 2000, while developing an e-learning and e-service business model at Mandriva, Henry Poole met with Richard Stallman in Amsterdam and discussed the issue of the GPLv2 license not requiring Web application providers to share source code with the users interacting with their software over a network. Over the following months, Stallman and Poole discussed approaches to solve the problem. In 2001, Poole founded Affero Inc. (a web services business), and he needed a license that would resolve this matter in GPLv2. Around late February 2002, Kuhn suggested, based on the idea of a quine (a program that prints its own source code), that GPLv2 be supplemented with a section 2(d) that would require derivative works to maintain a "download source" feature that would provide complete and corresponding source code. Kuhn argued that there was precedent for such a requirement in GPLv2 section 2(c), which required preserving certain features by downstream distributors and modifiers.[8] Moglen and Kuhn wrote the text of the proposed new section 2(d), and provided it to Poole, who then requested and received permission from the FSF to publish a derivative of GPLv2 for this purpose. In March 2002, Affero, Inc. published the original Affero General Public License (AGPLv1) for use with the Affero project and made the new license available for use by other software-as-a-service developers.[9][10][11] The FSF contemplated including the special provision of AGPLv1 into GPLv3 but ultimately decided to publish a separate license, nearly identical to GPLv3 but containing a provision similar in purpose and effect to section 2(d) of AGPLv1. The new license was named the GNU Affero General Public License. Retaining the Affero name indicated its close historic relationship with AGPLv1. The GNU AGPL was given version number 3 for parity with the GPL, and the current GNU Affero General Public License is often abbreviated AGPLv3. The finalized version of GNU AGPLv3[12] was published by the FSF on November 19, 2007. Both versions of the AGPL, like the corresponding versions of the GNU GPL on which they are based, are strong copyleft licenses. In the Free Software Foundation's judgment, the added requirement in section 2(d) of Affero GPL v1 made it incompatible with the otherwise nearly identical GPLv2. That is to say, one cannot distribute a single work formed by combining components covered by each license. By contrast, the GPLv3 and GNU AGPLv3 licenses include clauses (in section 13 of each license) that together achieve a form of mutual compatibility for the two licenses. These clauses explicitly allow the "conveying" of work formed by linking code licensed under the one license against code licensed under the other license,[13] despite the licenses otherwise not allowing relicensing under the terms of each other.[2] In this way, the copyleft of each license is relaxed to allow distributing such combinations.[2] To establish an upgrade path from Affero's original AGPLv1 to the GNU AGPLv3, Affero, Inc. published the Affero General Public License version 2 in November 2007,[14] which is merely a transitional license that allows recipients of software licensed under "AGPLv1 or any later version as published by Affero, Inc." to distribute the software, or derivative works, under the GNU AGPLv3 or any later version. Main article: List of software under the GNU AGPLStet was the first software system known to be released under the GNU AGPL, on November 21, 2007,[8] and is the only known program to be used mainly for the production of its own license. Flask developer Armin Ronacher noted in 2013 that the GNU AGPL is a "terrible success, especially among the startup community" as a "vehicle for dual commercial licensing", and gave Humhub, MongoDB, Odoo, RethinkDB, Shinken, Slic3r, SugarCRM, and WURFL as examples.[15] MongoDB dropped the AGPL in late-2018 in favor of the "Server Side Public License" (SSPL), a modified version which requires those who offer the licensed software as a service accessible to third-parties, to make the entire source code of all software used to facilitate the service (including without limitation all "management software, user interfaces, application program interfaces, automation software, monitoring software, backup software, storage software and hosting software, such that a user could run an instance of the service using the Service Source Code you make available") available under the same license.[16] As approval for the SSPL by the Open Source Initiative was not forthcoming, the application for certification was withdrawn. It was banned by both Debian and the Fedora Project, who state that the license's intent is to discriminate against cloud computing providers offering services based on the software without purchasing its commercial license.[clarification needed][17][18] Software continues to be released under AGPLv3, various examples include many servers and clients for the fediverse such as Mastodon, Pixelfed and PeerTube, office suite software OnlyOffice, the RStudio IDE for the R programming language, system monitoring platform Grafana, the document/bibliography management system Zotero and more. Decentralized chat and collaboration software Element was relicensed from Apache 2.0 to both AGPLv3 and GPLv3, with a separate commercial license for Element Commercial.[19][20][21] Free and open-source software portal List of software under the GNU AGPL Free-software license GNU General Public License GNU Lesser General Public License GNAT Modified General Public License GPL linking exception GNU Free Documentation License Comparison of free and open-source software licenses ^ Jaspert, Joerg (November 28, 2008). "ftp.debian.org: Is AGPLv3 DFSG-free?". The Debian Project. Retrieved December 1, 2008. ^ a b c d e "Various Licenses and Comments about Them". Free Software Foundation. 2020-05-07. Retrieved 2021-01-03. We recommend that developers consider using the GNU AGPL for any software that will commonly be run over a network. ^ a b "OSI approved licenses". Open Source initiative. 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Free Software Foundation (US). November 19, 2007. Archived from the original on 2007-12-04. Retrieved November 19, 2007. ^ "GNU General Public License". Free Software Foundation. 2007-06-29. Retrieved 2021-01-03. ^ "Affero General Public License". November 2007. Archived from the original on 2019-11-23. Retrieved 2021-01-03. ^ Ronacher, Armin (2013-07-23). "Licensing in a Post Copyright World". lucumr.pocoo.org. Archived from the original on 2013-07-27. Retrieved 2015-11-18. The AGPLv3 was a terrible success, especially among the startup community that found the perfect base license to make dual licensing with a commercial license feasible. MongoDB, RethinkDB, OpenERP, SugarCRM as well as WURFL all now utilize the AGPLv3 as a vehicle for dual commercial licensing. The AGPLv3 makes that generally easy to accomplish as the original copyright author has the rights to make a commercial license possible but nobody who receives the sourcecode itself through the APLv3 inherits that right. I am not sure if that was the intended use of the license, but that's at least what it's definitely being used for now. ^ "Server Side Public License (SSPL)". MongoDB. Archived from the original on 2021-10-23. Retrieved 2021-01-25. ^ Vaughan-Nichols, Steven J. "MongoDB "open-source" Server Side Public License rejected". ZDNet. Archived from the original on 2021-10-23. Retrieved 2019-01-17. ^ "MongoDB's licensing changes led Red Hat to drop the database from the latest version of its server OS". GeekWire. 2019-01-16. Archived from the original on 2021-10-23. Retrieved 2019-01-17. ^ "Element Copyright License - AGPL 3.0". Github. Retrieved 20 January 2025. ^ "Element Copyright License - GPL 3.0". Github. Retrieved 20 January 2025. ^ "Element Copyright License - Commercial License". Github. Retrieved 20 January 2025. Official website GNU Affero General Public License v3.0 Smith, Brett (November 19, 2007). "Free Software Foundation Releases GNU Affero General Public License Version 3" (Press release). Smith, Brett (March 29, 2007), GPLv3 and Software as a Service – also includes info on version 2 of the Affero GPL. Kuhn, Bradley M. (March 19, 2002). "Free Software Foundation Announces Support of the Affero General Public License, the First Copyleft License for Web Services" (Press release). Internet Archive 2018 snapshot of AGPL Frequently Asked Questions Affero Internet Archive 2018 snapshot of AGPL text Affero Retrieved from " Not to be confused with Free software or Free and open-source software. Software distributed and used at no cost, with other rights still reserved Freeware is software, often proprietary, that is distributed at no monetary cost to the end user. There is no agreed-upon set of rights, license, or EULA that defines freeware unambiguously; every publisher defines its own rules for the freeware it offers. For instance, modification, redistribution by third parties, and reverse engineering are permitted by some publishers but prohibited by others.[1][2][3] Unlike with free and open-source software, which are also often distributed free of charge, the source code for freeware is typically not made available.[1][3][4][5] Freeware may be intended to benefit its producer by, for example, encouraging sales of a more capable version, as in the freemium and shareware business models.[6] The term freeware was coined in 1982[7] by Andrew Fluegelman, who wanted to sell PC-Talk, the communications application he had created, outside of commercial distribution channels.[8] Fluegelman distributed the program via the same process as shareware.[9] As software types can change, freeware can change into shareware.[10] In the 1980s and 1990s, the term freeware was often applied to software released without source code.[3][11] Main article: Software license Freeware software is available for use without charge and typically has limited functionality with a more capable version available commercially or as shareware. It is typically fully functional for an unlimited period of time.[12] In contrast to what the Free Software Foundation calls free software, the author of freeware usually restricts the rights of the user to use, copy, distribute, modify, make derivative works, or reverse engineer the software.[1][2][13][14] The software license may impose additional usage restrictions,[15] for instance, the license may be "free for private, non-commercial use" only,[citation needed] or usage over a network, on a server, or in combination with certain other software packages may be prohibited.[13][14] Restrictions may be required by license or enforced by the software itself; e.g., the package may fail to function over a network.[citation needed] This Venn diagram describes the typical relationship between freeware and open source software: According to David Rosen from Wolfire Games in 2010, open source software (orange) is most often gratis but not always. Freeware (green) seldom expose their source codes.[5] The U.S. Department of Defense (DoD) defines "freeware" (i.e., free software free of charge) as a synonym for "free software", applicable to all by copyright governed works including software,[23] which allow a developer to define "freeware" in a legal safe and internationally law domains respecting way.[24][25][26] The typical freeware use case "share" can be further refined with Creative Commons restriction clauses like non-commerciality (CC BY-NC) or no-derivatives (CC BY-ND), see description of licenses.[original research?] There are several usage examples, for instance The White Chamber, MariO or Assault Cube,[27] all of which are by being CC BY-NC-SA licensed with only non-commercial sharing allowed. Freeware cannot economically only on commercial promotion. In May 2015 advertising freeware on Google AdWords was restricted to "authoritative source"[s].[28] Thus web sites and blogs are the primary resource for information on which freeware is available, useful, and is not malware. However, there are also many computer magazines or newspapers that provide ratings for freeware and include comparison freeware. Freeware is also often bundled with other products such as digital cameras or scanners. Freeware has been criticized as "unsustainable" because it requires a single entity to be responsible for updating and enhancing the product, which is then given away without charge.[17] Other freeware projects are simply released as one-off programs with no promise or expectation of further development. These may include source code, as does free software, so that users can make any required or desired changes themselves, but this code remains subject to the license of the compiled executable and does not constitute free software. A "free" trial is another related concept in which customers are allowed to use a product, free of charge, for a limited time.[29] When a software monopoly has a strong network effect, it may be more profitable for it to offer a "free" trial.[30] Also, customers acquired via a "free" trial have a much lower customer lifetime value as opposed to regular customers, but they also respond more to marketing communications.[31] Some factors that may encourage or discourage people to use "free" trials include:[32] perceived usefulness perceived ease of use perceived risk social influence gender Look up freeware in Wiktionary, the free dictionary. List of freeware List of freeware video games List of commercial video games released as freeware Freely redistributable software Gratis versus Libre Comparison of user features of messaging platforms ^ a b c "Freeware Definition". The Linux Information Project. 2006-10-22. Retrieved 2009-06-12. ^ a b Graham, Lawrence D (1999). Legal battles that shaped the computer industry. Greenwood Publishing Group. p. 175. ISBN 978-1-56720-178-9. Retrieved 2009-03-16. Freeware, however, is generally only free in terms of price; the author typically retains all other rights, including the rights to copy, distribute, and make derivative works from the software. ^ a b c d "Categories of free and nonfree software". Retrieved 2017-05-01. The term "freeware" has no clear accepted definition, but it is commonly used for packages which permit redistribution but not modification (and their source code is not available). These packages are not free "software" so please don't use "freeware" to refer to free software. ^ a b Frequently Asked Questions regarding Open Source Software (OSS) and the Department of Defense (DoD), retrieved 2012-06-11, Also, do not use the terms "freeware" or "shareware" as a synonym for "open source software". DoD Instruction 8500.2, "Information Assurance (IA) Implementation", Enclosure 4, control DCPD-1, states that these terms apply to software where "the Government does not have access to the original source code". The government does have access to the original source code of open source software, so these terms do not apply. ^ a b Rosen, David (May 16, 2010). "Open-source software is not always freeware". wolfire.com. Retrieved 2016-01-18. ^ Lyons, Kelly; Messinger, Paul R.; Niu, Run H.; Stroulia, Eleni (2012). "A tale of two pricing systems for services". Information Systems and E-Business Management. 10 (1): 19–42. doi:10.1007/s10257-010-0151-3. ISSN 1617-9846. S2CID 34195355. ^ "Shareware: An Alternative to the High Cost of Software", Damon Camille, 1987 ^ Fisher.hu Archived 2006-06-14 at the Wayback Machine ^ The Price of Quality Software by Tom Smith ^ Corbly, James Edward (2014-09-25). "The Free Software Alternative: Freeware, Open Source Software, and Libraries". Information Technology and Libraries. 33 (3): 65. doi:10.6017/ital.v33i3.5105. ISSN 2163-5226. ^ Stallman, Richard M. "Words to Avoid (or Use with Care) Because They Are Loaded or Confusing". GNU.org. Free Software Foundation. Retrieved 2017-05-01. Please don't use the term "freeware" as a synonym for "free software". The term "freeware" was used often in the 1980s for programs released only as executables, with source code not available. Today it has no particular agreed-on definition. ^ Dixon, Rod (2004). Open Source Software Law. Artech House. p. 4. ISBN 978-1-58053-719-3. Retrieved 2009-03-16. On the other hand, freeware does not require any payment from the licensee or end-user, but it is not precisely free software, despite the fact that to an end-user the software is acquired in what appears to be an identical manner. ^ a b "ADOBE Personal Computer Software License Agreement" (PDF) (in Arabic). Adobe. Archived (PDF) from the original on 2011-05-10. Retrieved 2011-02-16. This license does not grant you the right to sublicense or distribute the Software. ... This agreement does not permit you to install or Use the Software on a computer file server. ... You shall not modify, adapt, translate, or create derivative works based upon the Software. ... You shall not reverse engineer, decompile, disassemble, or otherwise attempt to discover the source code of the Software. ... You will not Use any Adobe Runtime on any non-PC device or with any embedded device version of any operating system. ^ a b "ADOBE READER AND RUNTIME SOFTWARE – DISTRIBUTION LICENSE AGREEMENT FOR USE ON PERSONAL COMPUTERS". Adobe. Retrieved 2011-02-16. Distributor may not make the Software available as a standalone product on the Internet. Distributor may direct end users to obtain the Software, with the exception of ARH, through electronic download on a standalone basis by linking to the official Adobe website. ^ "IrfanView Software License Agreement". Retrieved 2011-02-16. IrfanView is provided as freeware, but only for private, non-commercial use (that means at home). ... IrfanView is free for educational use (schools, universities and libraries) and for use in charity or humanitarian organisations. ... You may not distribute, rent, sub-license or otherwise make available to others the Software or documentation or copies thereof, except as expressly permitted in this License without prior written consent from IrfanView (Irfan Skiljan). ... You may not modify, de-compile, disassemble or reverse engineer the IrfanView "freeware". Oxford English Dictionary (Online ed.). Oxford University Press. (Subscription or participating institution membership required.) ^ a b Wainewright, Phil (July 6, 2009). "Free is not a business model". ZDNet. CBS Interactive. Archived from the original on May 23, 2010. ^ Foster, Ed (11 Jan 1999). "An exercise in frustration? Registerware forces users to jump through hoops". InfoWorld. 21 (2). InfoWorld Media Group. 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