

Result Viewer – Accessing Study Results Online

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1. Introduction

Different users of data often want the same results within one project but in different table or figure layouts to suit their requirements. These multiple requests then result in the same table or figure of results being produced multiple times, as they are produced for each request.

However, if the results are stored in a generic structure and different table or figure structures are offered, then all users with appropriate online access can access these results in various table or figure formats as and when required, rather than waiting for them to be reproduced. This will minimize the reproduction of the same table or figure results in different table or figure structures when requested by different statisticians/customers.

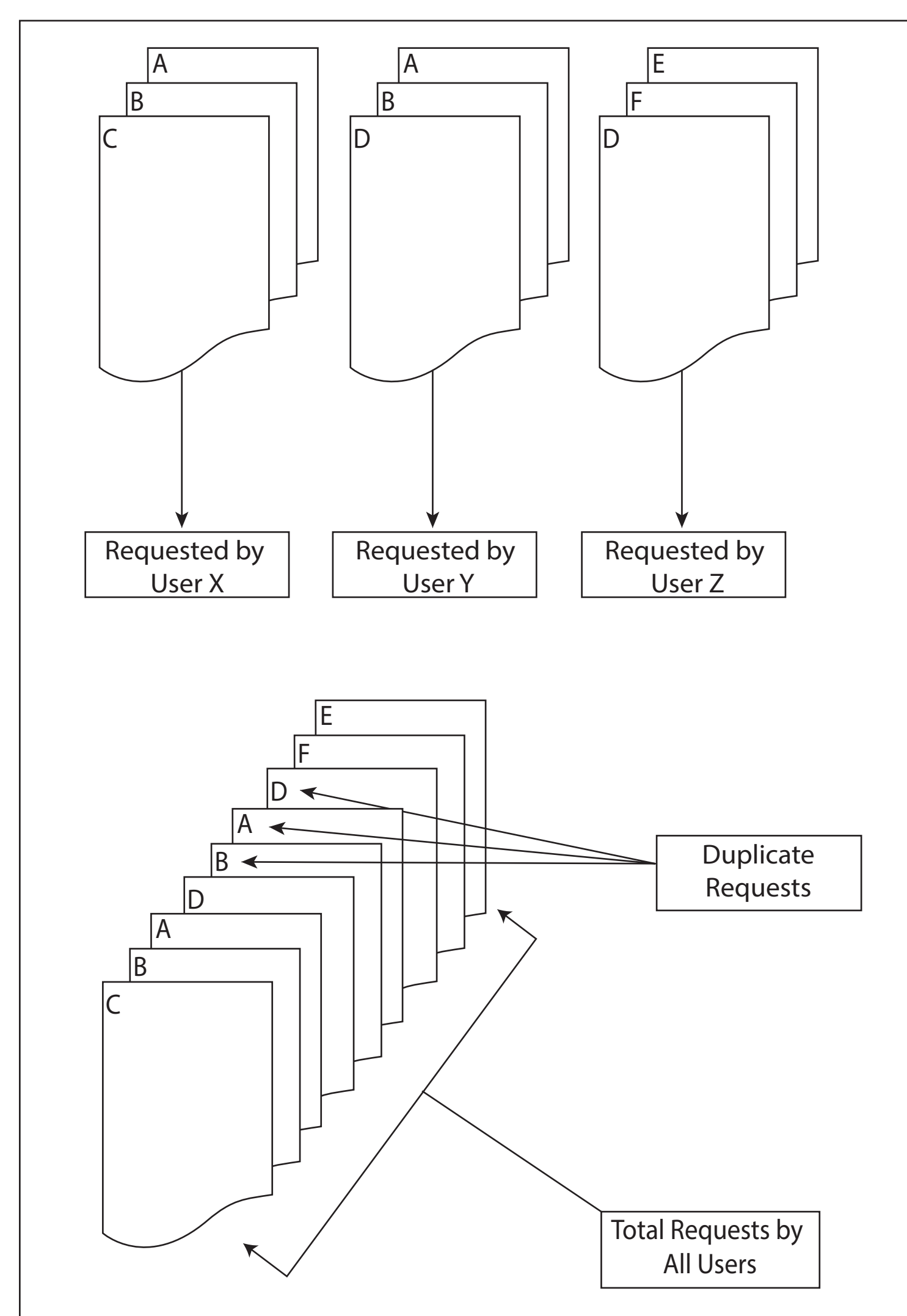


Diagram 1

2. Project goal

The optimization of resource use in production is the biggest challenge in present industries. The goal of this project is to help overcome this challenge by:

- Improving the existing ecosystem as well as widening the reachability of reports/projects/ research without any complex steps.
- Minimize the reproduction of same tables/figures in different structures for different people.
- Easily provide access to a wide range of people who usually are not directly involved with a study but need to access only the results.
- Easily control who can see which reports, either by project manager or management.

3. Current practice

For a specific study, when different users ask for summary results/reports, the layout usually differs. Based on different layouts, a statistical programmer produces similar tables in different layouts several times. Study results/reports are sent to specific customers after producing them. Even if the same results are asked by a different person, these will need to be produced independently for each request.

4. Drawbacks of current practice

Current practice has several drawbacks, such as:

- Similar tables or figures need to be produced in different layouts several times when requested by a different source/customer/ person (please see diagram 1).
- Sometimes the same results need to be produced repeatedly.
- Distribution of analysis results need to be handled individually when delivered to several people.
- No easy controlling system for management when it comes to distributing results among non-study members.

5. Proposed method summary

- This will be run as a web application.
- Specific people will be given permission to access specific projects according to their needs.
- Study team will produce study-wise results in such a manner that will follow a specific template and be stored in their specific directory.
- Anyone who has been given access to a study can view results via their browser after being logged into that study.
- Team leader or a central authority will manage, distribute and control the access to study folders to view results.

6. Web application

Web application layout is divided into two key parts:

- a. Front-end will serve as graphical user interface.
- b. Back-end will store, process, verify and serve results as per specific request.

For graphical illustration, please see diagram 2.

6.a Web application Front-end

- Front-end will be secured through SSL with 256bit encryption to avoid any intrusion or eavesdropping. The whole dataflow transferred between client and server will be encrypted.
- Two-step authentications will be used in the login form to ensure maximum security.
- A global access control policy grants users and user groups certain privileges to perform actions against available resources like projects, results and members.
- Every action requested by a user is evaluated by an authorization system and logged for reporting and auditing purposes.
- A new user account can be requested via signup page and can only be created after management's approval.
- Each user will have a single role. This can be named either a manager, project manager or a normal user.
- A manager role will have the administrator power for the whole site.
- A manager will be able to add or remove any user or project manager to any study.
- A project manager will be able to control/manage users for only a specific study.
- A normal user will be able to view, export and request results through a specific interface called dashboard.

- A normal user will also be able to send request to access specific study through the control panel.
- Each user's dashboard will give overview about the access to studies. Only already accessible studies will be listed on the dashboard.
- Each result under a specific study will be accessible through the dashboard, and will be listed by Title order. Results will be presented in plain text as they were stored in the original source to retain the same format.
- User will be able to export results for later use.

6.b Web application Back-end

- A PHP-based framework will be used to build the backend.
- Study results will be stored in a secured server under each study directory.
- A PHP script will read the directory structure and list all the files.
- When a result is requested, PHP script will check the results in cache to see whether it exists or not. If the original file is not modified after caching then it will serve the result from cache, otherwise it will read the file, store it into cache and then serve to front-end.

7. Advantages

- No need to follow complicated file transfer procedure.
- Reduced time to access the results as they can be accessible as soon as they are produced.
- Easier to control who will have access to which results.
- Saved resources by reducing the production of same results over and over.
- Secured by the highest level of protection.
- Easily accessible.

8. Conclusion

By removing the intricate steps to distribute analysis results to authorized persons, this application will not only save huge resources but will also work as a platform to drive more people engaged in clinical research. More importantly, this allows central control over clinical result distribution for different projects under one roof.

Please feel free to contact with us for further information.

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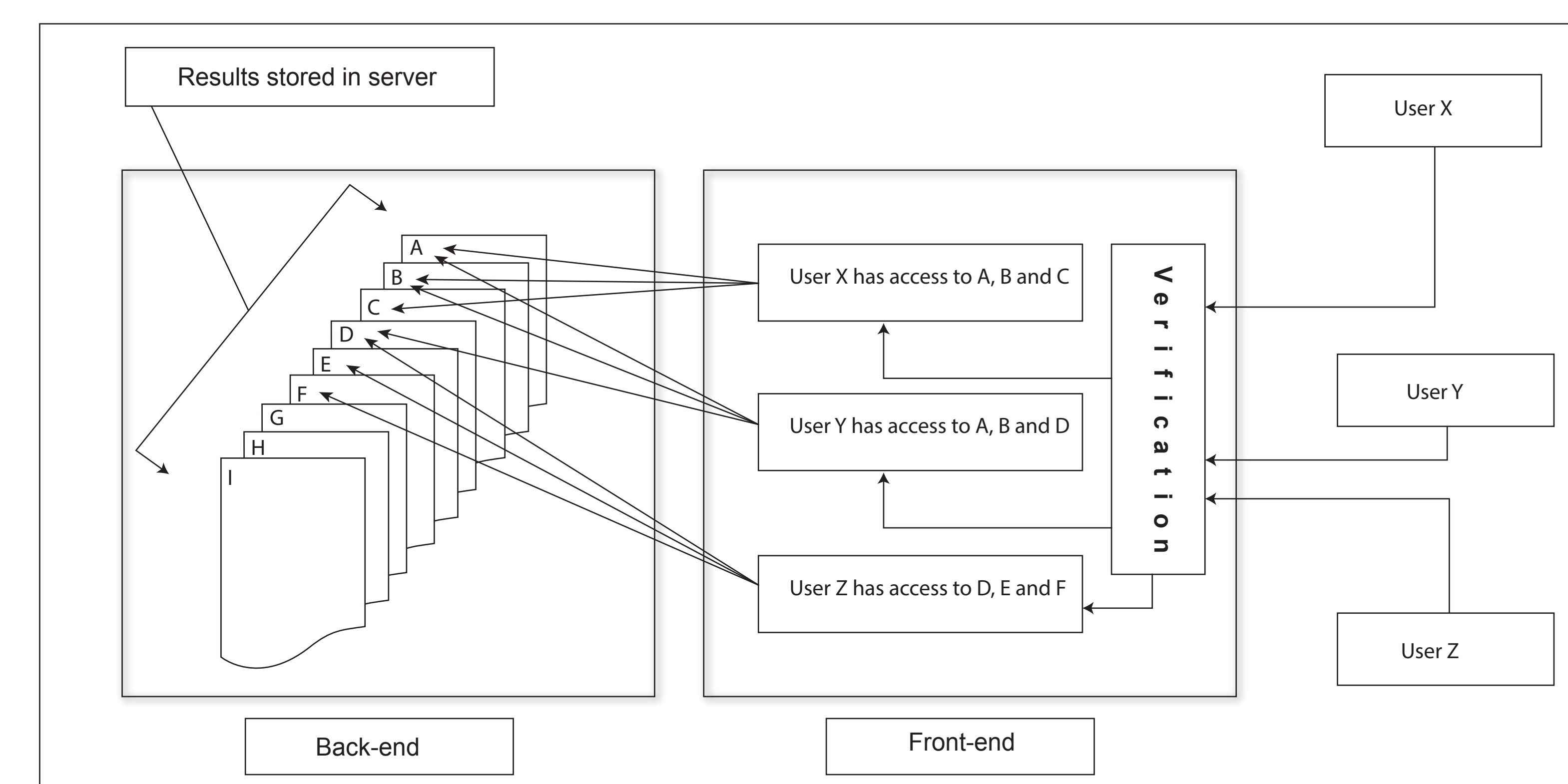


Diagram 2