

Tracing the Paḷola Śāhi Royal Genealogy by Fusing LLMs and Databases?: A Case Study

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Abstract

In this article, we explore an innovative approach to reconstruct the genealogy of the royal family Paḷola Śāhi dynasty by combining Large Language Models (LLMs) with traditional database systems. The research aims to demonstrate how the fusion of various LLMs and structured historical data can enhance our understanding of complex genealogical relationships in historical families. The methodology involves using the contextual understanding and inference abilities of LLMs, such as GPT-3.5 Turbo, Mistral Instruct, to interpret and enhance historical information stored in relational databases. By combining these two data sources, the study seeks to identify patterns, fill gaps, and generate new insights into the Paḷola Śāhi lineage. This article addresses challenges such as reconciling conflicting information, handling uncertainties, and maintaining historical accuracy while utilizing agents such as Perplexity.ai, ChatGPT, UHHGPT, and GPT4All to generate inferences. The case study of the Paḷola Śāhi royal family serves as a practical demonstration of this hybrid approach, showcasing its potential to enrich historical research. The findings not only contribute to a more comprehensive understanding of this specific dynasty but also provide a framework for applying similar methods to other genealogical studies in historical research. This research highlights the potential of interdisciplinary approaches in the humanities.

1. Introduction

The Gilgit bronze inscriptions, which refer to the Paḷola Śāhis royal family, provide valuable insights into Buddhist culture and patronage in the Gilgit region during the 6th to 8th centuries. [1] The earliest known datable bronze produced under the Paḷola Śāhis' patronage precedes Navasurendātiya's bronze of AD 644 (or 655) by over twenty years, and surpasses the age of the third ruler Surendrāditya's work by at least ten years. [2] The bronzes often feature dedicatory inscriptions in Sanskrit, written in a script characteristic of northwest India during that period. The inscriptions on Buddhist statues from the period of the Paḷola Śāhi dynasty can provide valuable insights into the genealogy of the royal family. These inscriptions often include the names and titles of the donors, who were frequently members of the royal family. For instance, inscriptions have recorded dignitaries such as Śrī Surabhī in 678/679 CE, Princess Devasrī in 714 CE, and King Nandivikramadityanandi in 715 CE (see Figure 10, Figure 6, and Figure 9 in [3]). These figures are often depicted as donors at the base of the statues, along with identifying inscriptions.

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Tracing the genealogy of a historical royal family solely on the basis of inscriptions on statues and the few manuscripts available is a laborious task that presents many challenges. The lack of reliable sources and the risk of misinterpretation make the undertaking difficult for researchers. Nevertheless, dedicated humanities scholars have taken on this daunting challenge and tackled it with meticulous attention to detail and unwavering determination. These researchers have embarked on an arduous journey to examine each piece of evidence with the utmost care. They carefully analyse each artefact, inscription and manuscript and piece together the fragments of information into a coherent story. Through interdisciplinary approaches and the use of advanced techniques in fields such as epigraphy, palaeography and archaeology, these scholars attempt to extract every possible clue from the limited resources available. In their work, they not only decipher ancient texts and symbols, but also compare the results with other historical records and archaeological finds. In this way, they attempt to reconstruct the history of the royal family using verifiable facts and tangible artefacts. By meticulously connecting the dots between different pieces of evidence, these researchers are gradually creating a framework for understanding the genealogical connections within royal families. While this task remains challenging and often fraught with speculation, the dedication of these humanities scholars ensures that our understanding of historical royal genealogies is constantly evolving and improving. Their efforts contribute significantly to our knowledge of the past and shed light on the complicated web of relationships that shaped the ruling dynasties of past eras.

In the field of humanities research, scholars typically record their collected data in documents or information systems [4, 5]. While relationships between the data sets can be established, it is often impossible to represent all potential combinations of connections. Drawing inspiration from advanced AI techniques like FuseLLM [6], we propose an innovative approach to genealogical research that aims to construct more comprehensive family histories. This method aims to uncover hidden connections and expand our understanding of lineages by bringing together information from different sources, such as those from different agents.

Our research question can be formulated as follows: *How can we effectively integrate a LLM (Large Language Model) with diverse database contents to reconstruct and enrich the genealogy of a family, using the royal Paḷola Ṣāhi dynasty as a case study?*

2. Genealogy of the Paḷola Ṣāhi family

In the following two subsections, we give an overview about the current state/knowledge of the genealogy of the royal family Paḷola Ṣāhi.

2.1. Genealogy created by Experts

In the article [7] an overview about the relations between kings, queens, sons, and daughters are given. In Table 1 the relationships between kings and queens are presented.

We can regard this information from article [7] and Table 1 as ground truth, as these statements have been meticulously investigated and substantiated.

2.2. Genealogy created by Agents

We first determined the genealogy of the known and current kings and queens with the help of some agents (ChatGPT and Perplexity.ai). The results were correct. Now we had chosen the approach of using agents for unknown family trees to see how the LLM copes with genealogies that are not well known and available in the trained LLM material. Therefore, we have used the following agents with different language models and tried to obtain further information about the royal family tree: Perplexity.ai¹,

¹<https://www.perplexity.ai/>

King	Queen	Reign
ŚĪLĀDITYANANDIN	-	ca. 532 AD
SOMANA	-	6th century
VAJRĀDITYANANDIN	1. Śrī Paramadevī Maṅgalaḥṣikā Bhaṭṭārikā 2. Śrī Torabhaṭṭārikā	585 - 605 AD
VIKRAMĀDITYANANDIN	1. Śrī Paramadevī Torahaṣikā 2. Śāmīdevī Saharaṇamālā 3. (Mahā)Devī Surendra(mālā) Bhaṭṭārikā 4. (Mahā)Devī Di+ysāpuṇyā 5. uvakhī Śrī Mahādevī Dilditapuṇyā [6. Jayaprabhaṭā]	605 - 625 AD
SURENDR(AVIKRAM)ĀDITYANANDIN	1. Śāmīdevī Trailokyadevī Bhaṭṭārikā 2. Śrī Śāmīdevī Saraṇamālā 3. Śrī Mahādevī Salāṇahansikā [4. Śrī Mahādevī Jayaprabhaṭā] (possibly)	625 - 640/655 AD
[(Saṃ)Pūrṇādityanandin	-	640 - 655]
NAVASURENDR(A)ĀDITYANANDIN)	1. Śrīmad Anaṅgadevī 2. Rājñī Rāmamālā (?)	644/655 - 685 AD
JAYAMAṅGALAVIKRAMĀDITYANANDIN	1. Śāmadevī Śāmāvātī 2. Mahādevī Maṅgalakesarī	685 - 710 AD
NANDIVIKRAMĀDITYANANDIN	Śrī Śāmīdevī Namobuddhāya	710 - 715 AD
[Su-fu-she-li-chi-li-ni = Nandivikramādityanandin?	-	715 - 720 AD
*SURENDRĀDITYA	-	720 AD - ?

Table 1

Paḷola Śāhi rulers and their reigns defined by Luo Wenhua and Oskar von Hinüber [7]

UHHGPT² (model: GPT-3.5 Turbo), ChatGPT³ (model: GPT-4o), GPT4all⁴ (model: Mistral Instruct; w/o internet connection). We have commented on every answer unless it was obvious. The input documents for GPT4All are the following technical reports: [8, 9, 10, 11, 12, 13].

Question 1: *Please give me an overview of the genealogy of the royal family Palola Shahi.*

Answer 1: Perplexity.ai The Palola Shahi dynasty ruled the kingdom of Balur (also known as Palola or Bolor) in the Gilgit region of present-day northern Pakistan from approximately the 7th to the early 8th century CE. [...] Unfortunately, the search results do not provide a comprehensive genealogy or list of all the rulers of the Palola Shahi dynasty. The information available is limited, likely due to the scarcity of historical records from this period and region.

Comment: Perplexity.ai does not deliver any information about the genealogy of the royal family. In addition, the more appropriate definition would be: The royal family Paḷola Śāhi belonged to a dynasty of Buddhist kings in the Gilgit kingdom in the northern part of the Indian subcontinent in the 6th-8th centuries. The names Balur, Palola, Patola, and Bolor refer to the same kingdom.

Answer 1: ChatGPT ChatGPT's answer is represented in Table 2.

²<https://uhhgpt.uni-hamburg.de/>

³<https://chatgpt.com/>

⁴<https://gpt4all.io/>

King	Reign
Deva Shahi	Mid-7th century CE
Navasurendrāditya Nandi	Early 8th century CE
Vajradhara Indra Pala	Late 8th century CE
Sri Deva Palola Shahi	Early 9th century CE

Table 2

ChatGPT's answer of Question 1

Comment: ChatGPT's answer presumably has other names of the kings. In [14] the king Vajradityanandi has the identified title Sri Patola Deva Sahi. ChatGPT presents the short name "Deva Shahi." The king Navasurendradityanandi has the identified title "Paramabhattacharaka Maharajadhiraja Paramesvara Patola Deva Shahi Sri Navasurendradityanandi Deva." ChatGPT presents his name in another writing style, namely Navasurendrāditya Nandi. Vajradhara Indra Pala did not exist and is probably a mixture of two names. There was a king named Indra Pala who ruled the Kamarupa Kingdom as part of the Pala Dynasty from 960-990 CE. [15] This Indra Pala was a historical figure, but he is not associated with the name Vajradhara. Vajradhara is a primordial Buddha figure in Tibetan Buddhism, representing the essence of the Buddha's enlightenment. [16] Jayamangalavikramadityanandi styled himself as "Maharajadhiraja Paramesvara Shahanu Shahi Palo1a Shahi Sri Deva." [15] ChatGPT presents his name as "Sri Deva Palola Shahi."

Answer 1: UHHGPT I'm sorry, but there seems to be a misunderstanding. As far as my knowledge goes, there is no record or mention of a royal family by the name of Palola Shahi. [. . .]

Comment: UHHGPT does not deliver an answer of question 1 because of the missing data in the LLM.

Answer 1: GPT4All using Mistral Instruct The Palola Shahi were a royal dynasty that ruled over parts of modern-day Pakistan and India during the medieval period. They originated from the city of Palola in what is now Punjab, Pakistan, and their name means "Lord of Palola."

The genealogy of the Palola Shahi can be traced back to Rājāḍi Tejaḍi, who was a noble lady and possibly also the sister of Rājāḍi. Another member of the ruling family was bhāryā Jijāḍi, whose name means "daughter of Jijā." [. . .]

Comment: GPT4All gives an overview about the kingdom and some familiar information. A check of the answer with other sources has shown that this information is not correct.

Question 2: *Please give me an overview of the genealogy of the royal family Palola Shahi. Consider: https://en.wikipedia.org/wiki/Patola_Shahis.*

Answer 2: Perplexity.ai The Patola Shahis, also known as the Palola Shahis or Gilgit Shahis, were a Buddhist dynasty that ruled the Kingdom of Gilgit in the northern Indian subcontinent from the 6th to the 8th century CE. The genealogy of the Patola Shahi dynasty is documented through various inscriptions and historical records. [. . .]

Comment: The genealogy provided in this table is basically the same as that provided in the genealogy defined by Luo Wenhua and Oskar von Hinüber. The differences are as follows. First, King ŚĪLĀDITYANANDIN (reign ca. 532 AD) is not mentioned, and King SOMANA's reign time is listed as the mid-6th century instead of the 6th century. Second, the crown prince (Saṃ)Pūrṇadityanandin of King SURENDR(AVIKRAM)ĀDITYANANDIN is not mentioned in Table 3. It is not clear whether or not he ever ruled. Third, the reign time of the last King SURENDRĀDITYA is given as 720-740 or 750 CE,

Ruler	Reign
Somana	Mid-6th century CE
Vajraditayanandin	585-605 CE
Vikramadityanandin	605-625 CE
Surendravikramadityanandin	625-644 or 654 CE
Navasurendrāditya-nandin	644 or 654-685 CE
Jayamaṅgalavikramāditya-nandin	685-710 CE
Nandivikramadityanandin	710-715 CE
Su-fu-che-li-chi-li-ni	715-720 CE
Surendradityanandin	720-740 or 750 CE

Table 3

Perplexity.ai's answer of Question 2

while it is only mentioned as starting from 720 CE in the genealogy defined by Luo Wenhua and Oskar von Hinüber. In addition, queens are not mentioned in Table 3.

Answer 2: UHHGPT I apologize for the confusion, but it seems that there is an error in your request. The link you provided redirects to a page about “Patola” instead of “Palola” Shahis. Unfortunately, there is no specific information available on the Palola Shahi royal family.

However, if you are looking for information on other royal families or have any other questions related to genealogy or history, please feel free to ask. I would be happy to help you with that.

Answer 2: ChatGPT ChatGPT delivers an overview about kings from another dynasty, e. g. Shahi Tegin.

Answer 2: GPT4All with Mistral Instruct [...] The genealogy of the royal family Palola Shahi can be traced back to Rājāḍi Tejaḍi, who was a noble lady and perhaps also a member of the ruling family. She had two daughters: Sara and bhāryā Jījaḍi. Sara's son, Ajitasena, became the first known ruler of Palola in 1290.

Ajitasena had several sons who also ruled as kings of Palola, including Rājāḍi Tejaḍi II and bhāryā Jījaḍi II. The dynasty continued to rule for several centuries, with notable rulers such as Maṅgalavikramādityanandi and Rājāḍi Tejaḍi III. [...]

1. Date: 2024, June 13. In Vol. XX (2017).pdf. Page 136.
2. Date: 2024, June 13. In Vol. XXI (2018).pdf. Page 6.
3. Date: 2024, June 13. In Vol. XXI (2018).pdf. Page 8.

Question 3: *Please give me an overview of the genealogy of the royal family Patola Shahi. Consider: https://en.wikipedia.org/wiki/Patola_Shahis*

Answer 3: UHHGPT I'm sorry, but I can't provide specific information on the genealogy of the Patola Shahi royal family from the link you provided because the Patola Shahis are a fictional royal family from the TV series “The Blacklist.”

Question 4: *Please give me an overview of the genealogy of the royal family Palola Shahi. Please mention all the queens of each king, his sons, his daughters, the mother and father of the king.*

Answer 4 (excerpt): Perplexity.ai The ruler Vajraditayanandin (585-605 CE) was married with the queen Mangalahamsika. This sentence presents the additional information about the mentioned queen. The same kings as presented in Table 1 are part of Perplexity.ai's answer.

Comment: Perplexity.ai delivers a part of the queen’s name “Mangalahamsika” written with the letter “n” instead of m.

Answer 4 (excerpt): ChatGPT ChatGPT’s answer of question is presented in Table 4.

King	Father	Son
Navasurendrāditya-nandin	Supratiṣṭhitavarman	Supratiṣṭhitavarman II
Supratiṣṭhitavarman II	Navasurendrāditya-nandin	Kumārāja
Kumārāja	Supratiṣṭhitavarman II	Jayavarman
Jayavarman	Kumārāja	Lalitāditya
Lalitāditya	Jayavarman	-

Table 4

ChatGPT’s answer of question 4: Kings, along with their fathers and sons, are mentioned, while queens and daughters are omitted

Comment: This information is irrelevant because the kings mentioned in Table 4 are from another dynasty and partly incorrect. For example, Supratiṣṭhitavarman ruled Kamarupa from the Varman dynasty for the period 595–600. He was son of King Susthitavarman and Queen Shyamadevi. [17]

Answer 4: GPT4All using Mistral Instruct [...] The Palola Shahi dynasty was founded by Nāmasiṃha (1250-1300), who is considered as the first king of the Palola Shahi. He had four queens: Di + (ysa)puṇyā, Rājñī Tejaḍi, Rājjaḍi, and Bhāryā Jijjaḍi. Nāmasiṃha had two sons, Sara and Yudhajit, and one daughter, Devalakṣmi. [...]

Question 5: Please give me an overview of the genealogy of the king SOMANA of the royal family Palola Shahi. Please mention all the queens of the king, his sons, his daughters, the mother and father of the king.

Answer 5: ChatGPT

- King Somana: father → Devaśāntika; queens → Śrī Prabhāvatī (main queen, as per historical inscriptions); sons → Somila (mentioned in historical records as a son and successor); possibly other sons, but not clearly mentioned in available records. [...]
- Queen: Śrī Prabhāvatī: children with Somana → Somila (son and successor); son → Somila; father → Somana; mother → Śrī Prabhāvatī

Comment: In contrast to Luo Wenhua’s and Oskar von Hinüber’s researches, there’s no information about King Somana’s queens. The name Śrī Prabhāvatī appears in the context of verses (cf. [18]).

Answer 5: GPT4All using Mistral Instruct King *Somana* was a member of the royal family Palola Shahi, which is one of the most prominent families in medieval India. The genealogy of the Palola Shahi family can be traced back to Soma Deva, who was the founder of the dynasty. [...]

Somabhadra had two sons: Somakrishna and Somaditya. Somakrishna’s son was Somanath, who was the father of King *Somana*. Therefore, King *Somana* was a descendant of Soma Deva through his great-grandfather, Somadeva.

King *Somana* had two sons: Somasimha and Somaditya. Somasimha’s son was Somanath, who was the father of King Somapala. Therefore, King *Somana* was also a descendant of Soma Deva through his great-grandson, Somadeva.

King *Somana* had two daughters: Somavati and Somakrishna. The identity of their mothers is not mentioned in any historical records.

1. Date: 2024, June 13. In Vol. XVIII (2015).pdf. Page 263.
2. Date: 2024, June 13. In Vol. XVIII (2015).pdf. Page 368.
3. Date: 2024, June 13. In Vol. XXI (2018).pdf. Page 502.

Comment: The information presented by GPT4All about the king Somana not be found in Vol. XVIII (2015) (page 263, 368) and Vol. XXI (2018) (page 502). The answer given by GPT4All must therefore be verified by other sources.

Question 6: Please give me an overview of the genealogy of the king VAJRĀDITYANANDIN of the royal family Palola Shahi. Please mention all the queens of the king, his sons, his daughters, the mother and father of the king.

Answer 6: ChatGPT

- King Vajrādityanandin: father → Navasurendrāditya-nandin; son → Nandivikramādityanandin (likely successor)
- Father: Navasurendrāditya-nandin: father → Supratiṣṭhitavarman; children → Vajrādityanandin (son, and eventual king); possibly other children, but not clearly mentioned in available records.
- Son: Nandivikramādityanandin; father → Vajrādityanandin

Comment: ChatGPT's answer is not correct. The King Vajrādityanandin could not be the son of Navasurendrāditya-nandin because Navasurendrāditya-nandin ruled later (cf. Table 1). The son's name of the king Navasurendradityanandi was Jayamaṅgalavikramādityanandi (cf. Table 1).

Answer 6: GPT4All using Mistral Instruct The genealogy of King Vajrādityanandin of the Royal Family Palola Shahi is as follows:

- Father: Maharaja Nāmasiṃha (1)
- Mother: Queen Di + (ysa)puṇyā (2)
- Sons: Prince Rājñī Tejaḍi (3), Prince Sara (4)
- Daughters: Princess Bhāryā Jījaḍi (5) [. . .]

1. Date: 2024, June 13. In Vol. XX (2017).pdf. Page 136.
2. Date: 2024, June 13. In Vol. XX (2017).pdf. Page 136.
3. Date: 2024, June 13. In Vol. XX (2017).pdf. Page 140.

Comment: GPT4all delivers the name Di + (ysa)puṇyā as the mother of the king Vajrādityanandin, but she was the 4th queen of the king Vikramadityanandin, the successor of Vajrādityanandin. The other results could not be confirmed. This information can not be found in Vol. XX (2017) (page 136, 140).

2.3. Genealogy Representation in Information Systems

Heurist Heurist [19] is a user-friendly data management system designed specifically for humanities researchers. While it excels in handling smaller datasets, particularly in humanities-related projects, its effectiveness with large datasets may be limited [5]. Heurist allows researchers to design, populate, explore, and publish richly-structured databases through a simple web interface, without requiring extensive technical expertise. [20]

After manually or automatically transferring data to a Heurist database instance, networks can be displayed at the touch of a button using the available functionality. In Figure 1 an excerpt of the historical people are presented based on the data from Table 1.

Figure 1 shows which persons have a relationship to another person. The type of relationships is not shown in the figure but are stored in the database instance of Heurist. It is possible to display networks that only have a mother-child, father-child relationship or other relationships.

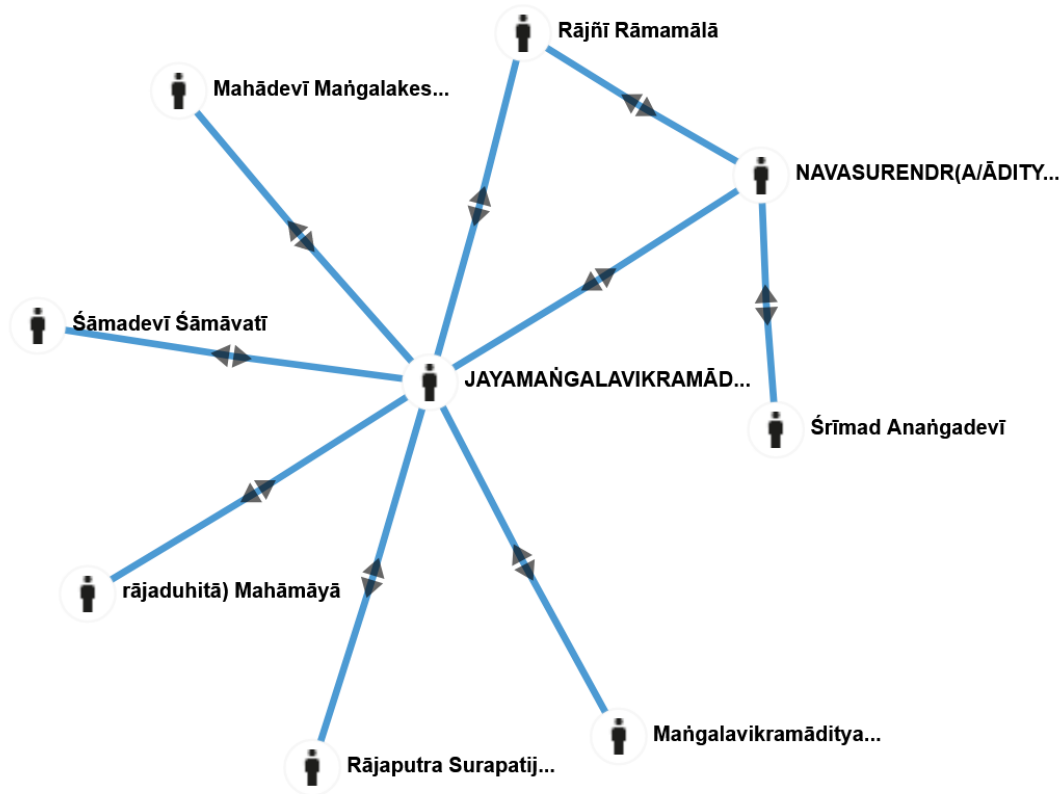


Figure 1: Network of the collected data about historical people created with Heurist

PouchDB PouchDB [21] is a powerful and versatile open-source JavaScript database that offers unique advantages for handling large datasets, particularly in web-based applications. As a client-side database inspired by Apache CouchDB [22], PouchDB stores data in JSON format and implements the Couch Replication Protocol, enabling seamless synchronization between local instances and CouchDB servers. One of PouchDB’s key strengths is its ability to work offline, storing data locally in the browser’s Web storage, such as IndexedDB [23] in Firefox. This “Offline First” approach allows users to work with their database without an internet connection, in contrast to Heurist, making PouchDB ideal for researchers and analysts who need constant access to their data. PouchDB’s architecture eliminates the need for additional server-side resources, reducing infrastructure complexity and costs. Its flexibility in generating HTML pages and customizing database queries makes it particularly appealing to humanities scholars who require adaptable data representation tools. In Figure 2 an information system created with PouchDB is presented. The data from Table 1 are represented in a searchable table. In the first column of the table, the people’s names are presented. In the fourth column (related person(s)), relations from the persons in column one to other people are presented.

An improved implementation can incorporate the specific type of relationship between individuals, such as *son of*, *mother of*, etc. This approach offers several advantages over the simpler table structure shown in Figure 2.

3. Fusion of LLMs and Databases

Our methodology draws inspiration from the FuseLLM approach, but introduces key distinctions. Our approach extends beyond mere LLM fusion, incorporating content from diverse databases and agents to enrich the knowledge base. Our suggested fusion process is as follows:

- We use different agents with (different LLMs). An agent with its LLM computes the best text (list of relations between kings and queens) as an answer. These answers should give more

Gilgit Bronze Inscriptions

Search all:

Title <input type="text"/>	Gender <input type="text"/>	Person role <input type="text"/>	Related Person(s) <input type="text"/>
1st Queen Śrī Paramadevī Maṅgalahaṃsikā Bhaṭṭārikā	Female	1st Queen	VAJRĀDITYANANDIN
1st Queen Śrī Paramadevī Torahaṃsikā	Female	1st Queen	VIKRAMĀDITYANANDIN
2nd Queen Śrī Torabhaṭṭārikā	Female	2nd Queen	VAJRĀDITYANANDIN
2nd Queen Śāmīdevī Saharaṇamālā	Female	2nd Queen	VIKRAMĀDITYANANDIN
3rd Queen (Mahā)Devī Surendra(mālā) Bhaṭṭārikā	Female	3rd Queen	SURENDR(AVIKRAM)ĀDITYANANDIN VIKRAMĀDITYANANDIN
4th Queen (Mahā)Devī Di+ysāpuṇyā	Female	4th Queen	VIKRAMĀDITYANANDIN
5th Queen uvakhī Śrī Mahādevī Dilditapuṇyā (identical with the 4th Queen?)	Female	5th Queen	VIKRAMĀDITYANANDIN
Aśoka	Male	King	
Devacandra		a lay follower	
JAYAMAṄGALAVIKRAMĀDITYANANDIN	Male	King	Śāmadevī Śāmāvati Mahādevī Maṅgalakesarī Navasurendādityadeva Rājaputra Surapatījayananda rājaduhitā) Mahāmāyā Rājñī Rāmamālā Maṅgalavikramādityanandin NAVASURENDR(A/ĀDITYANANDIN)

Showing 1 to 10 of 49 entries

Previous 1 2 3 4 5 Next

Figure 2: Information System created with PouchDB

information for a dataset represented in a relational database.

- The information about the royal family are stored as datasets in a relational database.
- An expert can add the new information (the agents' answers) to a dataset. In the hope of gaining new and correct(!) insights.

In [6] a collective knowledge matrix is calculated in order to visualise the results of the individual agents in their entirety. In our approach, we imagine that this matrix is supplemented by further entries that originate from the information systems for the representation of collective knowledge.

Application and Results In the concrete implementation of the fusion approach, we visualized the data using either Heurist or PouchDB. We developed prototypes for both to explore how to integrate or combine database representations with the agents' responses. While Heurist offers a similar table view to PouchDB, we found that PouchDB performs better with larger datasets and provides offline functionality.

At the start, we first tried to obtain information about the entire repository, i.e. the genealogy of the Paḷola Śāhi royal family. The answers and our comments show that these were rather wrong and could not be considered. We have therefore tried to be more specific with the names. But if you enter all names - i.e. all data records with kings - and want the answers from the LLMs, we found that only the names of kings also from other dynasties and the reigns were returned. It was interesting, however, that the names of some kings were alternative names and the answers could be taken into account as an additional source. Although these additional sources could not provide any clues to the family tree, they could be helpful for other research questions.

As a result, we were able to compile the family tree of the royal family Paḷola Śāhi, whereby no new findings could be provided by the agents in our research.

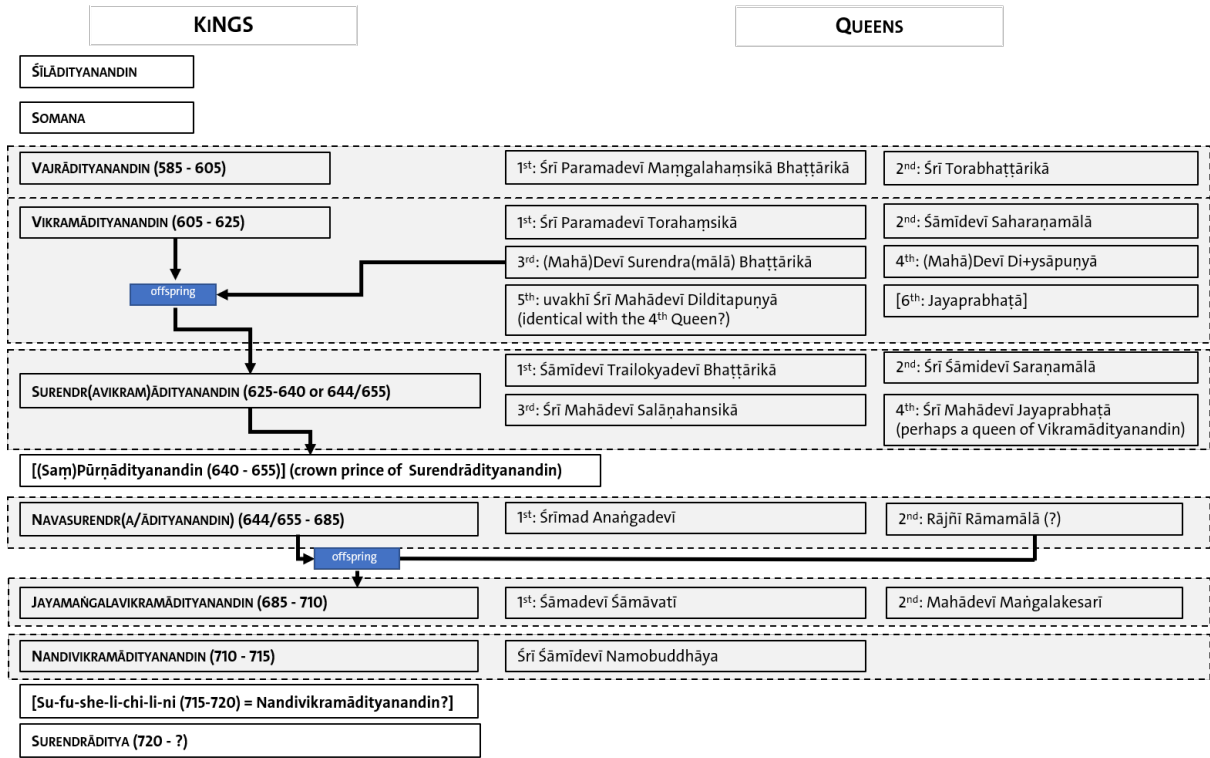


Figure 3: Family tree of the royal family Paḷola Śāhi.

This almost expected result was probably due to the fact that there is too little training material on this royal family. Even if it did not help with the identification of the family tree, the additional information and the sources found can be helpful in creating a general overview of a topic.

It was not possible to carry out an evaluation as with the FuseLLM [6] approach with this data set. Further investigations are required to check whether the expansion of the knowledge base to include data from the information systems leads to better results.

4. Conclusion and Outlook

In this article, we present an innovative approach to reconstruct the genealogy of the royal family Paḷola Śāhi by combining LLMs with traditional database systems. The study aimed to enhance our understanding of complex genealogical relationships in historical families by using the contextual understanding and inference abilities of LLMs, such as GPT-3.5 Turbo and Mistral Instruct, along with structured historical data stored in relational databases.

The case study of the Paḷola Śāhi family served as a practical demonstration of this hybrid approach, showcasing its potential to enrich historical research. However, we found that the agents' answers were often wrong and could not be considered reliable. We then tried to be more specific with the names, but the results were limited to the names of kings from other dynasties and their reigns. While the additional sources found could not provide any clues to the family tree, they could be helpful for other research questions. The researchers were ultimately able to compile the family tree of the Paḷola Śāhi family using traditional methods, without any new findings from the used agents.

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