

# Analysing library usage patterns through Digital Footfall Dashboards: A case study of Uttarakhand University

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**Abstract--** This study examines the usage pattern of the Uttarakhand University Library by analyzing data from the digital footfall dashboard. The research provides information about user behaviour, maximum usage time, departmental distribution, and trends across various time limits. Using dashboard- based analytics, the study identifies important patterns of people coming to the library that can give information about service improvement, staffing and location adaptation.

**Keyword--** Library analytics, footfall data, academic library, user behaviour, dashboard analysis, Uttarakhand University

## I. INTRODUCTION

In the digital age, the academic library has no longer left inactive reserves of information, but has become a dynamic center for learning and cooperation. It is essential to understand user behaviour to enhance library services. At Uttarakhand University, a digital dashboard has been used to track the movement of users and generate real-time information. The purpose of this study is to analyse dashboard data and prepare a functional pattern that can shape future library strategies.

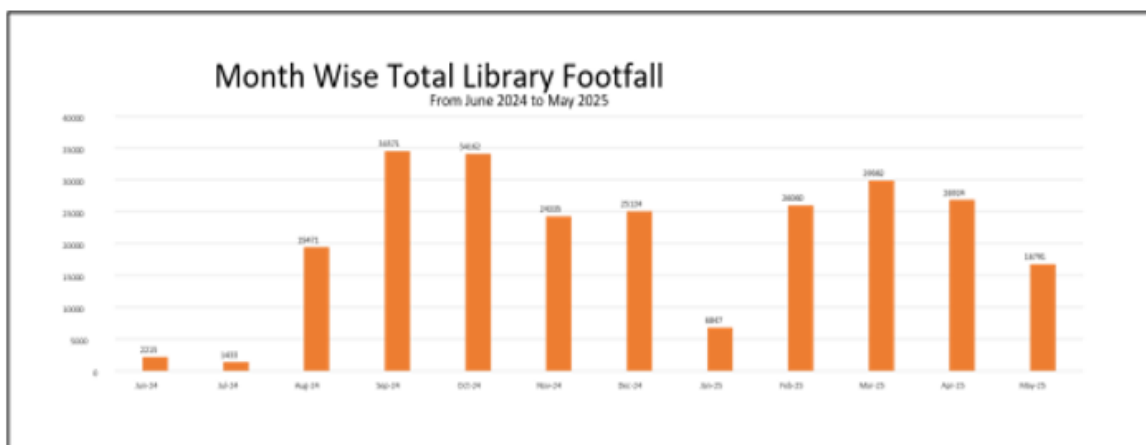
## II. PURPOSE OF STUDY

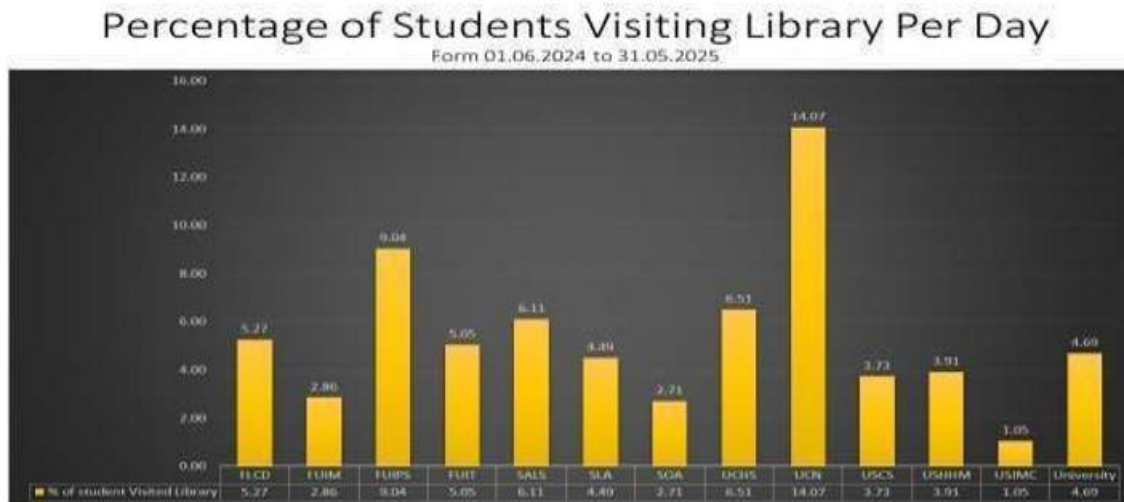
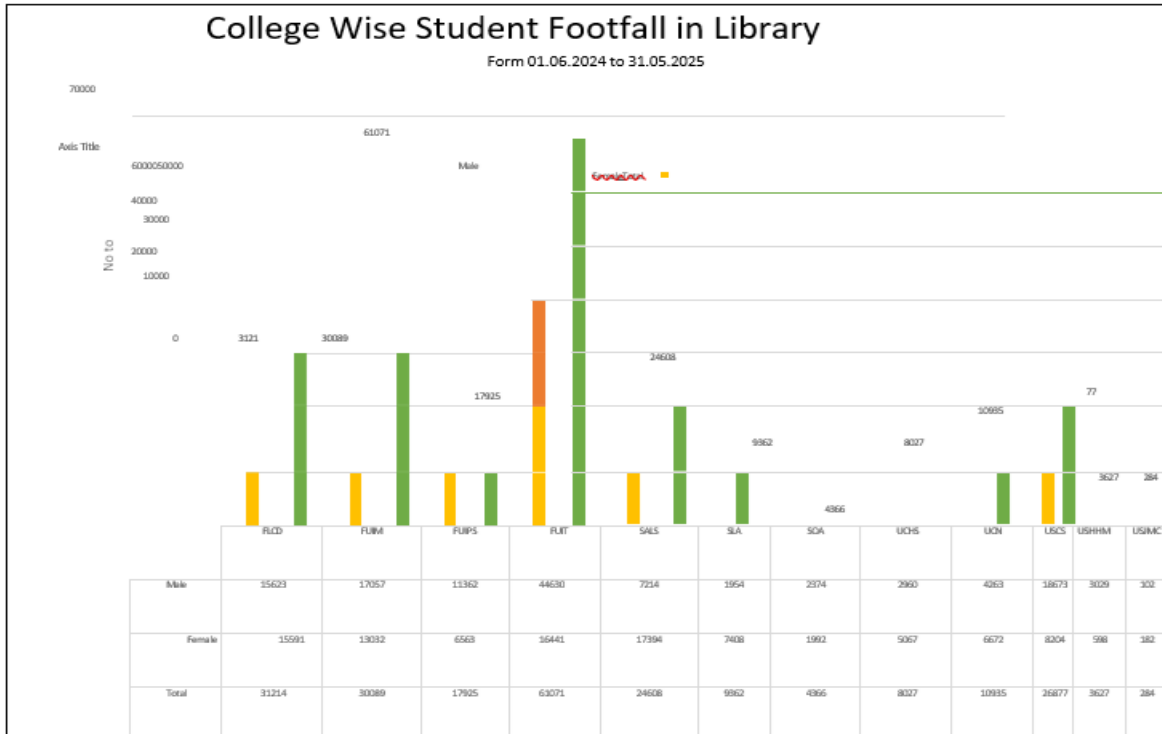
- Identifying the extreme hours and days of library use.
- Analysis of departmental and demographic user distribution.
- Understanding monthly and annual footfall trends.
- To evaluate the impact of digital resources on physical visits.
- Proposing to improve library services based on user behaviour.

## III. METHODOLOGY

This research adopts data-analysis approaches using a visual dashboard generated through digital log records. The study uses dashboard visualisation that represents footfalls, departmental users, gender-wise uses, repeated user patterns and time-based activity levels. Descriptive and comparative analyses were used to identify the pattern.

## IV. DATA ANALYSIS AND FINDINGS







#### V. MONTHLY AND ANNUAL FOOTFALL TREND

The highest monthly use was observed in April and August, indicating extreme educational activities. From January to mid-year, there was a gradual increase in the use of the library, followed by the examination duration and during the holiday months.

#### VI. DEPARTMENT-WISE ANALYSIS

On analysing the data given above, it is known that Students of engineering and law have used the library. The trend of students in the management and pharmacy departments is relatively rare. Humanities and concerned departments showed minimum but consistent use.

#### VII. GENDER BASED FOOTFALL DISTRIBUTION

0–65% of the total users were male. The use of females in the middle of the morning and the afternoon was the highest, which suggests alignment with the classroom schedule.

#### VIII. HOURLY AND DAILY USE PATTERNS

Peak hours: 10:00 AM to 1:00 PM, with a second surge between 3:00 PM to 5:00 PM. Lowest footfall was observed during lunchtime and late evenings. Weekdays, especially Tuesdays and Thursdays, saw the highest visits.

#### IX. ANALYSIS OF LIBRARY FOOTFALL (JUNE 2024 – MAY 2025)

##### *a) Overall trends:*

Monthly footfall experiences significant ups and downs, which reflect different use patterns in the academic calendar.

##### *b) Most Footfall:*

The highest footfall was recorded in September 2024 (18,672) and October 2024 (18,612). This peak probably matches the onset of the academic semester when students are highly busy with academic and research activities.

##### *c) The lowest Footfall:*

The lowest use appears in January 2025 (6,847) and June 2024 (2,015). These declines may be the cause of semester breaks, holidays or low educational commitments

##### *d) Recovery after winter:*

Rapid growth is observed after January, strong recovery appears in February (20,050) and March (19,312), which is probably due to exam preparation and project work.

##### *e) Summer Decline:*

After reaching the peak in March and April, there is a decline in May 2025 (16,765), which possibly marks the end of the academic year.

##### *f) Formation of the Initial Academic Year"*

In June and July (2,015 and 5,118 respectively), the footfall is low, which suggests that the use of the library increases gradually as the academic year progresses.

#### X. ANALYSIS OF COLLEGE-WISE LIBRARY FOOTFALL (JUNE 2024-MAY 2025)

##### *Main characteristics:*

##### *a) Top contributor to footfall:*

The UIT (Uttaranchal Institute of Technology) has the highest total footfall: 68,271 students.

Male: 42,068

Women: 26,203

This indicates research-oriented programs, possibly with high academic engagement and intensive library use.

##### *b) Medium contributor:*

FUIM (Uttaranchal Institute of Management) - 30,089

FUIPS (Uttaranchal Institute of Pharmaceutical Sciences) - 17,925  
SALS (Agricultural School) - 24,608

USCS (Uttaranchal College OF Computing Science) – 18,673

##### *c) College with low attendance:*

USHHM (School of Hospitality and Hotel Management) - 3,627  
SOA (School of Agriculture) – 4,366

USJMC (Mass Communication) – 284

These numbers can either reflect low enrolment, low dependence on the library, or low use of library services.

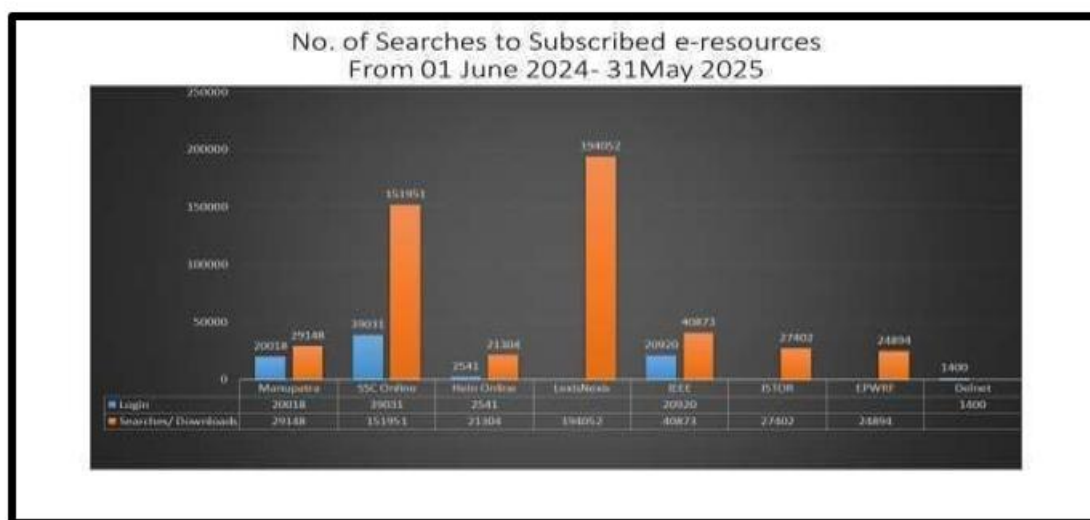
*Comparative footfall Analysis*

User category	2023-24	2024-2025	Change %
Student male	1,07,215	1,39,283	+29.9%
Student female	77,906	1,01,175	+29.9%
Staff male	1,921	13,399	+5978%
Staff female	2,069	3,123	+50.9%
Total	1,90,111	2,47,982	+30.5%

*Explanation and insight:*

An analysis of the aforementioned table indicates that the total number of users was 190,011 in the year 2023-24, which increased to 2,47,982 in 2024-25. This demonstrates a positive trend in user engagement with the library, reflecting the effectiveness of our services. The growth rates among male and female students are equivalent, and the library's outreach and inclusivity efforts across various categories are well-balanced.

Collectively, students account for the majority of the overall visitor count. There has been a consistent increase in student participation, evidencing a 30% rise in engagement. Moreover, employees, particularly male staff members, exhibit an escalating utilisation of library resources for educational and administrative purposes. There is equal growth in both genders, pointing toward inclusive access and the usefulness of services. Data justifies continued funding, staff support, and possibly infrastructure upgrades to support the growing user base.



**XI. ANALYSIS: USE OF SUBSCRIBED E-LEARNING RESOURCES (JUNE 2024 - MAY 2025)**

- ✚ IEEE-ASSP
- ✚ EBSCO-BSE
- ✚ Indian Journal of Diva Enterprises
- ✚ SAGE journals

- ✚ Cambridge eBooks Online
- ✚ EPWRF-India Time Series
- ✚ JSTOR
- ✚ DELNET
- ✚ SSC Online
- ✚ LexisNexis India
- ✚ HEIN Online & Manupatra



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*a) Top Three e-Learning Resources by Searches/Downloads:*



- LexisNexis: 194,052 Search/Download (Most) VV
- SSC Online: 151,951
- IEEE: 40,873

These platforms probably complete highly desired domains such as law (LexisNexis, SSC online) and engineering (IEEE), which reflect subject-specific information requirements.

*b) Users' Connection:* Platforms such as Manu Patra, SSC Online and Hen Online show a high logintosearch ratio, which suggests active use after login.



LexisNexis and IEEE also display high use despite limited or login data, indicating uninterrupted access through IP or institutional sign-in.

*c) Medium -less-used platforms:*



JSTOR: 27,402

EPWRF: 24,894

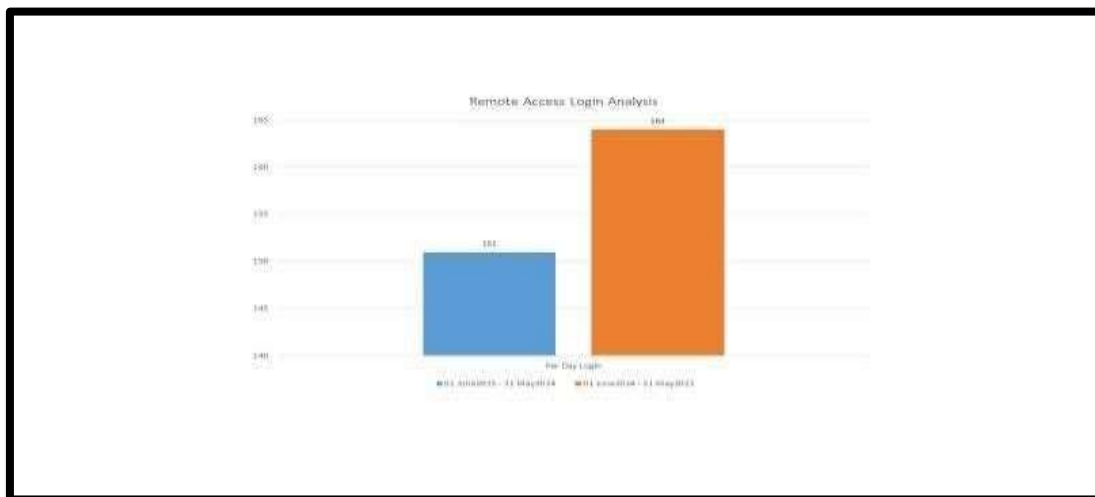
DELNET: 1,400 (lowest)

These numbers either indicate low awareness or limited alignment with the educational/research requirements of the user.

*Implications for library services:*

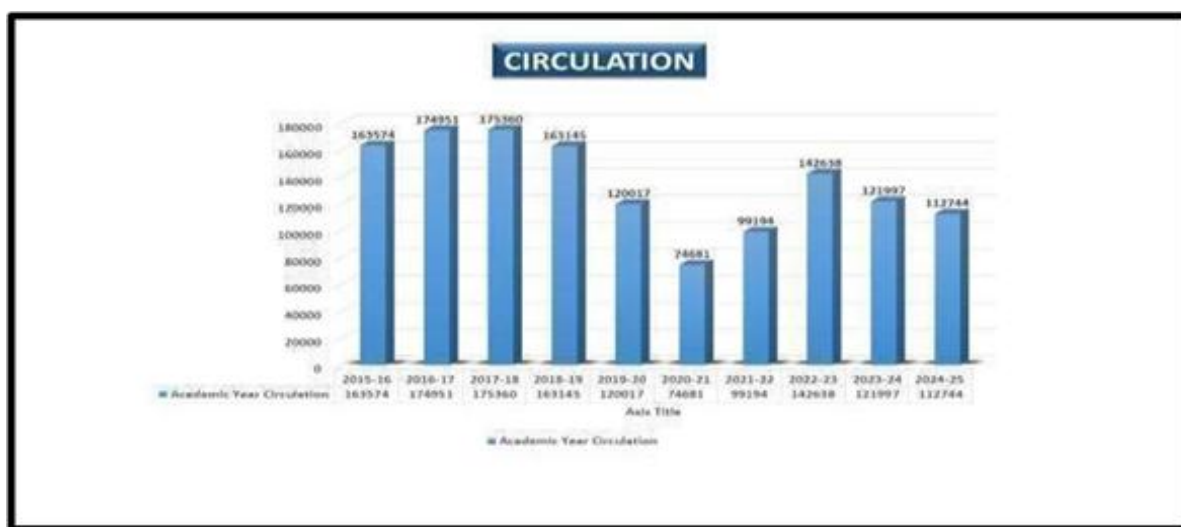
The success of platforms such as LexisNexis and SSC Online justifies continuous investment and expanded training for users. Training for low-use databases: User training is required for low use of DELNET and Hein Online, especially in departments where they can be beneficial. High search quantity with minimal login data suggests the value of IP-based certification for the facility.

Remote Access Login Analysis:



*Comparative insights:* Educational Year, 01 June 2023 - 31 May 2024 (last year) 151, 01 June 2024 - 31 May 2025 (Current) 164,13 Login/ per day Grow, which reflects the increasing number. This increase reflects improvement in digital awareness between students and teachers. The dependence on e-learning resources has increased after the COVID-19 digital changes. There is possibly increased connectivity, an authentication mechanism or a library campaign.

*Implications for library services:* Continuous investment in remote access platforms (eg, Nimbus) is appropriate. Increased participation outside the campus can give direction to digital collection development. Consider further user training and support of the infrastructure to maintain growth.



*Decadal Trend in Library Circulation at Uttarakhand University (2015– 2025)*

Academic Year	Total Circulation
2015–16	1,63,574
2016–17	1,74,951
2017–18	1,75,360
2018–19	1,63,145
2019–20	1,20,017
2020–21	74,681
2021–22	99,194
2022–23	1,42,638
2023–24	1,21,997
2024–25	1,12,744

*Growth Phase -2015-16- 2017-18:* The library saw a steady increase in circulation, with 1,75,360 books in circulation in 2017-18. This phase reflects an active academic environment, possibly due to increased student enrolment, academic programs, or promoting library use.

*Decline Period -2018-19-2020-21:* There was a significant decrease in 2018-19, and it deteriorated in 2019–20 and 2020-21. In 2020–21, COVID-19 caused the complex to close and limit the physical access to library resources, resulting in a sharp decline of 74,681. This phase represents the lowest circulation in a decade.

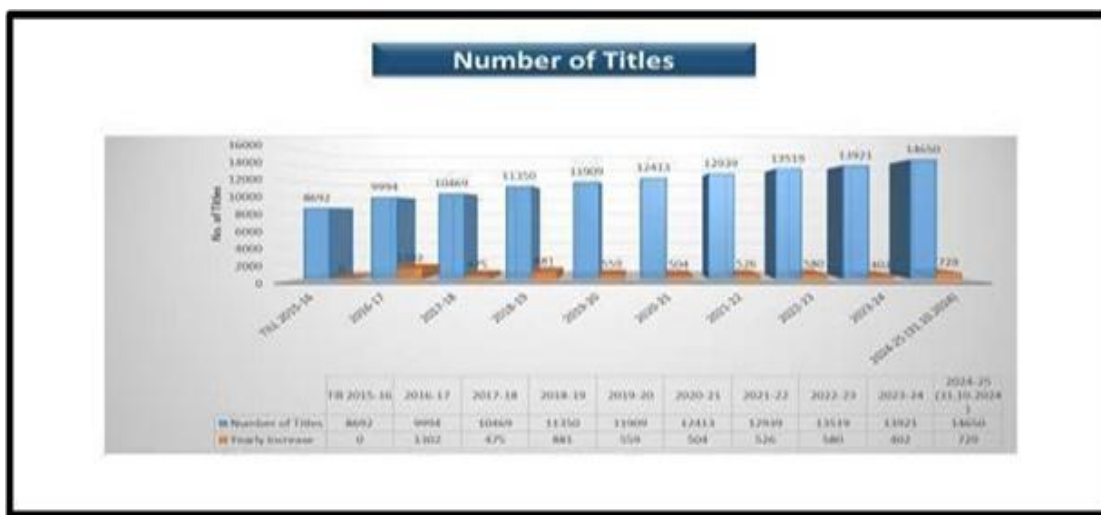
*Post-Pandemic Recovery (2021–22 to 202-23):* A stable withdrawal of employees and students to use physical libraries was shown by broadcasting data, which began to recover in 2022-23 and reached 1,42,638.

*Current decline (2023–24 to 2024–25):* Despite the previous rebound, the movement once again fell to 1,21,997 in 2023–24 and then increased to 1,12,744 in 2024–25.

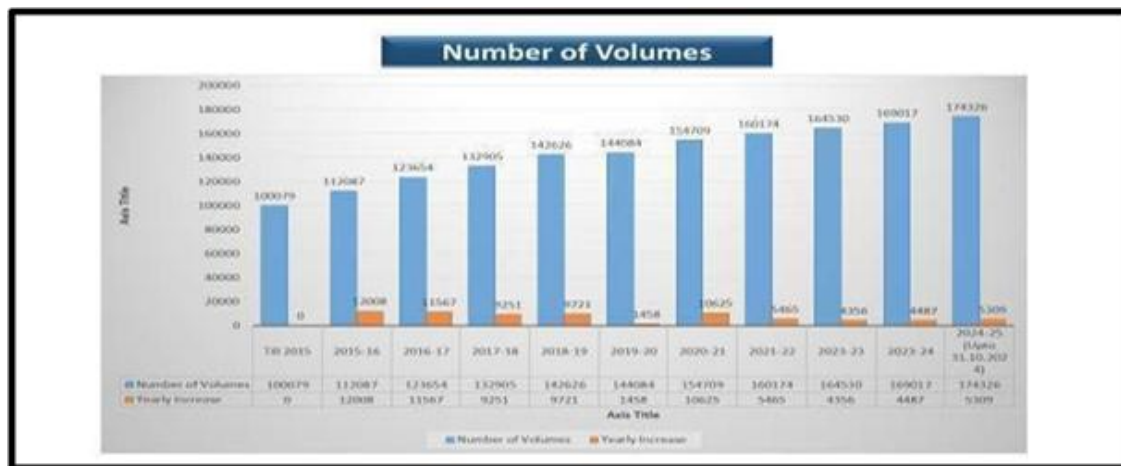
It may indicate away from physical books and the use of digital resources, to move away from the course or potential adjustment of the academic schedule.

*Implications for library services:*

*Digitalisation and e-resources:* An Indefinite pattern indicates the increasing demand for digital information. **Invested in databases and e-books** to meet the user's demands. **Access and promotion:** Library marketing, subject-specific collection and adaptation programs can be reversed with recent decline, with renewed emphasis on involvement of employees and students. **Data-powered decisions:** By observing continuous trends, the library can increase its development, modify services and serve educational objectives better. **The Book Bank Policy** will be implemented to promote library spread. A book bank policy should be implemented to benefit both the library and students.







With 14,650 books by October 2024, the library's collection has grown by 68.5% during the previous 10 years, from 8,692 before 2016. Significant increases in acquisitions occurred from 2016 to 2017 (+302 titles), 2018–19 (+881 titles), and in just 10 months, 2024–25 (until October), which will have gained 729 titles. This suggests that efforts to expand the collection have been continuous, with a 2024 revitalisation. Growth in Collected Volumes: From 1,00,079 books in 2015 to 1,74,326 volumes in 2024, the collection has increased by 73.9%. The year with the most annual increases was 2015–16 (+12,008 volumes). 2020–21 (10,625 volumes plus) The significant growth in 2020–21 might be attributed to post-COVID resource augmentation or digital-to-physical reinvestment activities. Strong collection is reflected in stable annual growth in development titles and versions, which coincide with the demands and educational expansion of the course.

## XII. FUTURE BENEFITS

Real-time insights into peak usage periods, departmental engagement, and gender-based patterns will allow library administrators to optimise services. This includes adjusting operational hours, increasing staffing during high-demand times, and tailoring services to user needs. With detailed college-wise and demographic data, resources (both human and material) can be allocated more efficiently. High-usage departments such as Engineering and Law can be prioritised for additional infrastructure and specialised services, while underutilised areas can be targeted with outreach and awareness campaigns. The documented growth in library usage—both physical and digital—provides a strong justification for continued or increased budget allocations.

This includes investments in digital resources, physical infrastructure, and user training programs. Usage trends aligned with the academic calendar allow for the synchronisation of library support with teaching, research, and examination schedules. Libraries can partner with faculty to embed resource use into coursework, thereby increasing both visibility and impact. The balanced growth in footfall among male and female users and across multiple departments reflects inclusivity. Future strategies can further enhance access for underrepresented groups by offering gender-sensitive spaces, extended hours, and multilingual assistance. The rise in remote logins and eresource access points to increasing digital adoption. Continued promotion and training for e-resources will strengthen digital literacy, a vital 21st-century skill, and enhance research capabilities across disciplines. Footfall dashboards can lead to the development of user-specific services—such as personalised reading lists, subject-specific alerts, and targeted communication—to improve user satisfaction and engagement.

## XIII. CONCLUSION

The current study demonstrates the profound impact of adopting digital analytics in library management and service delivery. By analysing footfall and resource usage data, the Uttarakhand University Library has gained valuable insights into how, when, and why users engage with its services. These findings reveal clear trends aligned with the academic calendar, departmental priorities, and gender-specific usage behaviour. The significant rise in library visits—both by students and staff—along with increased engagement with digital platforms, marks a shift toward a hybrid model of library usage that blends physical presence with digital accessibility.





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The post-pandemic recovery, increased volume acquisition, and diversified user base underline the resilience and evolving role of academic libraries in supporting education and research. Looking forward, this evidence-based approach equips the university to make informed decisions that enhance learning outcomes, support curriculum delivery, and foster a culture of academic excellence. The digital footfall dashboard is not merely a monitoring tool—it is a strategic asset for institutional growth, resource planning, and inclusive development. With continued support and innovation, the library can further evolve into a dynamic, responsive, and studentcentric learning hub at the heart of Uttarakhand University.

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