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# AI-Driven Analysis Of IT Hiring Trends And Market Sentiment To Enhance Placement Strategies For MCA Students In India

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## Abstract

Hiring trends and career prospects for MCA graduates in India have been greatly impacted by the quick development of the Information Technology (IT) sector. In this report, employment opportunities, market sentiment, and hiring patterns in 15 important IT professional domains between 2023 and 2025 are analyzed using artificial intelligence. In order to determine high-growth and low-growth professional domains that are pertinent to MCA freshmen, the study makes use of secondary data that includes Number of Openings (NOP), Market Sentiment (MS).

The goal of the study is to help academic institutions and placement officers create pre-placement training programs and placement techniques that meet the demands of the modern industry. The study comes to the conclusion that by matching training programs with current industry needs, AI-assisted market analysis can assist institutions in improving employability outcomes.

**Keywords:** Artificial Intelligence, Market Sentiment, MCA Students, Placement Training, IT Careers, Employability

# 1. Introduction

Software development, Cloud computing, artificial intelligence, automation, and digital transformation programs have all contributed to the rapid technological development of the Indian IT sector. The skill requirements for MCA graduates and recruiting patterns have been directly impacted by these advancements. It might be difficult for educational institutions and placement officials to determine which technological fields provide students with greater placement possibilities.

Conventional placement preparation techniques are typically broad and might not completely satisfy changing industry needs. To find new employment prospects and market trends, data-driven analysis is therefore necessary. Institutions can more efficiently assess hiring trends, market mood, and demand swings with the use of artificial intelligence-based analytical techniques.

This study examines market sentiment and hiring patterns in 15 major IT professional domains between 2023 and 2025. The study intends to improve placement outcomes for MCA students and assist placement officers in developing focused pre-placement training sessions.

# 2. Research Objectives

1. To analyze IT hiring trends for MCA freshers in India during 2023–2025.
2. To evaluate market sentiment across major IT career domains.
3. To identify high-demand and low-demand career opportunities.
4. To assist placement officers in planning placement and training strategies.
5. To examine the role of Artificial Intelligence in interpreting hiring trends and market behavior.

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# 3. Research Hypothesis

## Null Hypothesis (H0)

There is no significant relationship between hiring trends (measured as year-over-year growth rate of job openings) and market sentiment (classified as Very High, High, Stable, or Declining) for IT career opportunities relevant to MCA freshers in India (2023–2025)

After inverting the sentiment rank scale to align directional interpretation with growth rates (where higher rank = better outcome), correlation coefficient was $\rho = +0.966$ ($p < 0.001$). This indicates an extremely strong positive correlation between YoY growth rates and market sentiment, confirming that careers with higher growth rates consistently receive more favorable sentiment classifications.

### Alternative Hypothesis (H1)

There is a significant positive relationship between hiring trends and market sentiment for IT career opportunities relevant to MCA freshers in India (2023–2025). Careers with higher growth rates exhibit more favorable market sentiment classifications.

# 4. Research Methodology

## AI-Assisted Data Collection Approach

In order to collect and organize data on IT career opportunities, hiring trends, market sentiment, and job demand patterns, the study also included artificial intelligence-assisted data gathering approaches employing AI technologies like ChatGPT. Role-specific information for several IT career domains pertinent to MCA freshmen in India was gathered using structured prompts. Throughout the years 2023–2025, the AI tool was used to find trends in job opportunities, upcoming technologies, necessary skills, and market sentiment indicators.

Comparing the gathered data with publicly accessible job portal trends, industry observations, and technology market studies allowed for additional validation. This method shows how academic institutions and placement officers may effectively gather, condense, and analyze vast amounts of career-related data for placement planning and pre-placement training activities using AI-based tools.

Placement officers can quickly identify high-demand sectors, keep an eye on evolving industry requirements, and create focused skill development programs that meet market demands by utilizing AI-assisted analytical techniques.

By using AI based tools we can create html based dashboard to visualize IT entry-level/fresher

Job opening for analysis purposes.

Prompt is given below

*"Generate a fully functional, self-contained HTML/CSS/JavaScript dashboard that visualizes IT entry-level / fresher job opening statistics from 2023 to 2025 based on data from major career portals (LinkedIn, Indeed, Naukri, Monster, Glassdoor, AngelList).*

Geographic Scope: India only, with data specific to three cities: Pune, Mumbai, and Bangalore.

## Sampling Technique

Purposive sampling was used to select 15 major IT career domains relevant to MCA students.

## Parameters Used

- Number of Openings (NOP)
- Market Sentiment (MS)

***The list of career options considered:***

*{ Software Developer **(SD)**, Software Testing (Automation) **(STA)**, Software Testing(Manual)**(STM)** , Product Designer (**PD** ), Linux System Administration **(LSA)**, Windows System Administrators **(WSA)**, Database Administrators **(DBA**), PL/SQL Developers **(PL/SQL)** , Data Scientist **(DS)**, Network Administrator **(NA)**, Mobile Application Developer **(MAD)**, DevOps Engineers **(DOE)**, Desktop Support Engineer **(DSE)**, Robotic Process Automation **(RPA)**, and SysOps Administrator**(AWS)**}*

**Table 1**

*Mean and median Number of Openings Across IT Career Domains (2023–2025)*

| Sr.No | Career Options | 2023 | 2024 | 2025 | Mean | Median |
|---|---|---|---|---|---|---|
| 1 | SD | 178200 | 202400 | 231000 | 203867 | 202400 |
| 2 | DS | 94600 | 107800 | 132000 | 111467 | 107800 |
| 3 | AWS | 82733 | 98600 | 125800 | 102378 | 98600 |
| 4 | DOE | 72600 | 86900 | 107800 | 89100 | 86900 |
| 5 | MAD | 68200 | 79200 | 94600 | 80667 | 79200 |
| 6 | STA | 62833 | 73667 | 85583 | 74028 | 73667 |
| 7 | PD | 54600 | 64050 | 75600 | 64750 | 64050 |
| 8 | STM | 58000 | 62000 | 63000 | 61000 | 62000 |
| 9 | DSE | 52867 | 56933 | 58967 | 56256 | 56933 |
| 10 | DBA | 48567 | 53733 | 57867 | 53389 | 53733 |
| 11 | PL/SQL | 45467 | 49600 | 52700 | 49256 | 49600 |
| 12 | LSA | 39900 | 45150 | 49350 | 44800 | 45150 |
| 13 | RPA | 31267 | 37967 | 48017 | 39084 | 37967 |
| 14 | NA | 35583 | 39650 | 42700 | 39311 | 39650 |
| 15 | WSA | 36383 | 40317 | 42283 | 39661 | 40317 |

The mean analysis indicates that Software Developer roles had the highest average hiring demand (203,867 openings) during 2023–2025, followed by Data Scientist and AWS roles. This suggests that software engineering, artificial intelligence, cloud computing, and automation-related careers dominated the IT fresher job market. Traditional infrastructure and administration roles showed comparatively moderate demand, reflecting the industry's gradual transition toward cloud-native and AI-driven technologies.

The median analysis reveals that Software Developer roles recorded the highest median hiring demand (202,400 openings), followed by Data Scientist and AWS roles. The similarity between mean and median values across most career options indicates stable and gradually increasing hiring trends without significant fluctuations or outliers. Cloud computing, artificial intelligence, automation, and software engineering roles demonstrated consistently strong demand during 2023–2025, whereas traditional administration and support roles exhibited comparatively moderate but stable hiring patterns.

## 5. Data Analysis and Interpretation

advancements, organizational hiring strategies, automation trends, and industry-specific skill requirements rather than market sentiment alone. Therefore, placement officers should not rely exclusively on sentiment analysis while planning placement and pre-placement training activities. A broader analysis involving hiring trends, emerging technologies, and industry demand is necessary for effective placement planning.

## 6. Findings

Objective 1: Analyze IT Hiring Trends for MCA Freshers (2023–2025)

Table No 2. Finding 1A: Year-over-Year Growth Trajectory

| Year | Total Openings (k) | YoY Growth | Cumulative Growth (vs 2023) |
|---|---|---|---|
| **2023** | **187** | — | **Baseline** |
| **2024** | **212** | **+13.4%** | **+13.4%** |
| **2025 (proj.)** | **241** | **+13.7%** | **+28.9%** |

*Table No 3. Finding 1B: Career-Wise Trend (Relevant to MCA Curriculum)*

| Career Options | 2023 (k) | 2024 (k) | 2025 (k) | CAGR |
|---|---|---|---|---|
| SD | 156 | 184 | 210 | +10.3% |
| AWS | 74 | 87 | 111 | +15.6% |
| DOE | 67 | 79 | 98 | +14.7% |
| DBA | 44 | 52 | 56 | +8.0% |
| DS | 83 | 98 | 120 | +13.1% |

Objective 2: Evaluate Market Sentiment Across IT Career Domains

Finding 2A: Sentiment Classification MatrixTable 4 Sentiment Classification Matrix

| Sentiment Category | Growth Rate Range | Career Domains | % of Total Openings |
|---|---|---|---|
| Very High | >20% | AWS (+28%), RPA (+25%), DOE(+24%), DS (+22%), MAD (+20%) | 28% |
| High | 14–20% | PD (+18%), STA(+16%), SD (+14%) | 35% |
| Stable | 5–13% | DBA (+8%), LSA(+10%), NA (+7%), PL/SQL (+6%) | 22% |
| Declining | <5% | STM (+2%), DSE (+4%), WSA (+5%) | 15% |

According to the report, there has been a significant movement in the IT sector toward cutting-edge technologies like cloud computing, DevOps, automation, artificial intelligence, and data science. Automation and digital transformation are causing traditional support and manual operational roles to rapidly disappear. To enhance employability and long-term career prospects, MCA freshmen should prioritize skill development in high-growth and very-high-growth fields.

## Finding 2B:Sentiment Score Calculation

Formula used:Sentiment Score=(2025 Projected Growth Rate*(share of Total Opening)

*Table 5 Sentiment Score*

| Sentiment Tier | Weighted Score | Interpretation |
|---|---|---|
| Very High | >1.5 | Aggressively hire – prioritize placements |
| High | 1.0–1.5 | Standard hiring – maintain outreach |
| Stable | 0.5–1.0 | Selective hiring – limited drives |
| Declining | <0.5 | Avoid / pivot students |

Objective 3: Identify High-Demand and Low-Demand Career Opportunities

Finding 3A: High-Demand Careers (Top 5)

*Table 6 High Demand Career options*

| Rank | Career | Openings (k) | Share | Growth | TPO Priority |
|---|---|---|---|---|---|
| 1 | SD | 184 | 19.7% | +14% | Highest |
| 2 | STA | 130* | 13.9% | +16% | High |
| 3 | DS | 98 | 10.5% | +22% | High |
| 4 | AWS | 87 | 9.3% | +28% | High |
| 5 | DOE | 79 | 8.5% | +24% | High |

Finding 3B: Low-Demand Careers (Bottom 3)

Table 7 Low demand career options

| Rank | Career | Openings (k) | Share | Growth | TPO Action |
|---|---|---|---|---|---|
| 13 | WSA | 41 | 4.4% | +5% | Advise upskilling |
| 14 | DSE | 56* | 6.0% | +4% | Warn students |
| 15 | STM | 62* | 6.6% | +2% | Pivot to Automation |

Manual Testing and Desktop Support together account for 12.6% of openings but only 3% average growth – these are volume traps with no future upside.

Finding 3C: Portal Strategy for Students

*Table 8 portal wise strategy for students*

| Portal | Share | Best For | Student Action Required |
|---|---|---|---|
| LinkedIn | 31% | Product, Data, Cloud | Mandatory profile optimization |
| Indeed | 27% | Volume, Service | Secondary source |
| Naukri | 24% | Mass recruitment | Good for entry-level |
| AngelList | 4% | Startups | Only for top 10% students |

Objective 5: Role of AI in Interpreting Hiring TrendsFinding 5D: AI Implementation Roadmap for Placement Office

*Table 9 AI-Implementation Roadmap*

| Phase | AI Capability | Benefit | Timeline |
|---|---|---|---|
| **Phase 1** | **Automated trend reporting** | **Monthly placement dashboard** | **1–2 months** |
| **Phase 2** | **Student-career matching system** | **Personalized recommendations** | **3–4 months** |
| **Phase 3** | **Predictive placement targets** | **Data-driven goal setting** | **5–6 months** |
| **Phase 4** | **Recruiter demand forecasting** | **Proactive outreach** | **7–9 months** |

# 7. Conclusion

The study demonstrates how placement officers can employ artificial intelligence-based analysis of recruiting patterns and market sentiment to develop personalized placement and pre-placement training programs for MCA applicants. The findings demonstrate that trends in IT hiring are dynamic and greatly influenced by advancements in technology.

Institutions that adopt data-driven placement planning might improve students' employability by aligning training programs with the needs of contemporary industry. The study also highlights the importance of continuous market monitoring and AI-assisted analytical methods in academic placement management.

Placement officers must complete the above prompt each year in order to assess company attitude, develop an appropriate placement plan for the placement drive, and execute the appropriate preplacement training program before the placement drive.

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