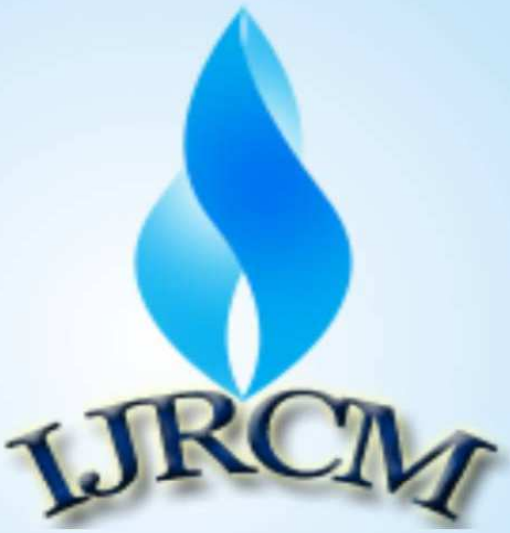
INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

IJRCM



A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

Indexed & Listed at:

Ulrich's Periodicals Directory ©, ProQuest, U.S.A., EBSCO Publishing, U.S.A., Cabell's Directories of Publishing Opportunities, U.S.A.,

Open J-Gage, India [link of the same is duly available at Inflibnet of University Grants Commission (U.G.C.)],

Index Copernicus Publishers Panel, Poland with IC Value of 5.09 & number of libraries all around the world.

Circulated all over the world & Google has verified that scholars of more than 4255 Cities in 176 countries/territories are visiting our journal on regular basis.

Ground Floor, Building No. 1041-C-1, Devi Bhawan Bazar, JAGADHRI – 135 003, Yamunanagar, Haryana, INDIA

http://ijrcm.org.in/

CONTENTS

CALL FOR MANUSCRIPTS

We invite unpublished novel, original, empirical and high quality research work pertaining to recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Rural Economics; Co-operation; Demography: Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

Anybody can submit the **soft copy** of unpublished novel; original; empirical and high quality **research work/manuscript** ***anytime*** in ***M.S. Word format*** after preparing the same as per our **GUIDELINES FOR SUBMISSION**; at our email address i.e. infoijrcm@gmail.com or online by clicking the link **online submission** as given on our website (***FOR ONLINE SUBMISSION, CLICK HERE***).

GUIDELINES FOR SUBMISSION OF MANUSCRIPT

1. **COVERING LETTER FOR SUBMISSION:**

DATED: _____

THE EDITOR

IJRCM

Subject: **SUBMISSION OF MANUSCRIPT IN THE AREA OF _____.**

(e.g. Finance/Mkt./HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)

DEAR SIR/MADAM

Please find my submission of manuscript entitled '_____' for possible publication in one of your journals.

I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published elsewhere in any language fully or partly, nor is it under review for publication elsewhere.

I affirm that all the co-authors of this manuscript have seen the submitted version of the manuscript and have agreed to their inclusion of names as co-authors.

Also, if my/our manuscript is accepted, I agree to comply with the formalities as given on the website of the journal. The Journal has discretion to publish our contribution in any of its journals.

NAME OF CORRESPONDING AUTHOR	:
Designation	:
Institution/College/University with full address & Pin Code	:
Residential address with Pin Code	:
Mobile Number (s) with country ISD code	:
Is WhatsApp or Viber active on your above noted Mobile Number (Yes/No)	:
Landline Number (s) with country ISD code	:
E-mail Address	:
Alternate E-mail Address	:
Nationality	:

NOTES:

a) The whole manuscript has to be in ***ONE MS WORD FILE*** only, which will start from the covering letter, inside the manuscript. ***pdf. version is liable to be rejected without any consideration***.

b) The sender is required to mention the following in the **SUBJECT COLUMN of the mail**:

New Manuscript for Review in the area of (e.g. Finance/Marketing/HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)

c) There is no need to give any text in the body of mail, except the cases where the author wishes to give any **specific message** w.r.t. to the manuscript.

d) The total size of the file containing the manuscript is expected to be below **1000 KB**.

e) **Abstract alone will not be considered for review** and the author is required to submit the **complete manuscript** in the first instance.

f) ***The journal gives acknowledgement w.r.t. the receipt of every email within twenty four hours*** and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of manuscript, within two days of submission, the corresponding author is required to demand for the same by sending a separate mail to the journal.

g) The author (s) name or details should not appear anywhere on the body of the manuscript, except the covering letter and the cover page of the manuscript, in the manner as mentioned in the guidelines.

2. **MANUSCRIPT TITLE: The title of the paper should be **bold typed**, **centered** and **fully capitalised**.

3. **AUTHOR NAME (S) & AFFILIATIONS: Author (s) **name**, **designation**, **affiliation** (s), **address**, **mobile/landline number** (s), and **email/alternate email address** should be given underneath the title.

4. **ACKNOWLEDGMENTS: Acknowledgements can be given to reviewers, guides, funding institutions, etc., if any.

5. **ABSTRACT: Abstract should be in **fully italicized text**, ranging between **150** to **300 words**. The abstract must be informative and explain the background, aims, methods, results & conclusion in a **SINGLE PARA**. ***Abbreviations must be mentioned in full***.

6. **KEYWORDS: Abstract must be followed by a list of keywords, subject to the maximum of **five**. These should be arranged in alphabetic order separated by commas and full stop at the end. All words of the keywords, including the first one should be in small letters, except special words e.g. name of the Countries, abbreviations.

7. **JEL CODE: Provide the appropriate Journal of Economic Literature Classification System code (s). JEL codes are available at www.aeaweb.org/econlit/jelCodes.php, however, mentioning JEL Code is not mandatory.

8. **MANUSCRIPT: Manuscript must be in ***BRITISH ENGLISH*** prepared on a standard A4 size ***PORTRAIT SETTING PAPER***. *It should be free from any errors i.e. **grammatical, spelling** or **punctuation.** It must be thoroughly edited at your end*.

9. **HEADINGS: All the headings must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.

10. **SUB-HEADINGS: All the sub-headings must be bold-faced, aligned left and fully capitalised.

11. **MAIN TEXT**:

THE MAIN TEXT SHOULD FOLLOW THE FOLLOWING SEQUENCE:

INTRODUCTION
REVIEW OF LITERATURE
NEED/IMPORTANCE OF THE STUDY
STATEMENT OF THE PROBLEM
OBJECTIVES
HYPOTHESIS (ES)
RESEARCH METHODOLOGY
RESULTS & DISCUSSION
FINDINGS
RECOMMENDATIONS/SUGGESTIONS
CONCLUSIONS
LIMITATIONS
SCOPE FOR FURTHER RESEARCH
REFERENCES
APPENDIX/ANNEXURE

The manuscript should preferably range from ***2000 to 5000 WORDS***.

12. **FIGURES & TABLES:** These should be simple, crystal **CLEAR**, **centered**, **separately numbered** & self explained, and **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. *It should be ensured that the tables/figures are referred to from the main text*.

13. **EQUATIONS/FORMULAE:** These should be consecutively numbered in parenthesis, horizontally centered with equation/formulae number placed at the right. The equation editor provided with standard versions of Microsoft Word should be utilised. If any other equation editor is utilised, author must confirm that these equations may be viewed and edited in versions of Microsoft Office that does not have the editor.

14. **ACRONYMS:** These should not be used in the abstract. The use of acronyms is elsewhere is acceptable. Acronyms should be defined on its first use in each section: Reserve Bank of India (RBI). Acronyms should be redefined on first use in subsequent sections.

15. **REFERENCES:** The list of all references should be alphabetically arranged. ***The author (s) should mention only the actually utilised references in the preparation of manuscript*** and they are supposed to follow Harvard Style of Referencing. **Also check to make sure that everything that you are including in the reference section is duly cited in the paper**. The author (s) are supposed to follow the references as per the following:

- All works cited in the text (including sources for tables and figures) should be listed alphabetically.
- Use (**ed.**) for one editor, and (**ed.s)** for multiple editors.
- When listing two or more works by one author, use --- (20xx), such as after Kohl (1997), use --- (2001), etc, in chronologically ascending order.
- Indicate (opening and closing) page numbers for articles in journals and for chapters in books.
- The title of books and journals should be in italics. Double quotation marks are used for titles of journal articles, book chapters, dissertations, reports, working papers, unpublished material, etc.
- For titles in a language other than English, provide an English translation in parenthesis.
- ***Headers, footers, endnotes*** *and* ***footnotes*** *should* ***not be used*** *in the document.* However, **you can mention short notes to elucidate some specific point**, which may be placed in number orders after the references.

PLEASE USE THE FOLLOWING FOR STYLE AND PUNCTUATION IN REFERENCES:

BOOKS

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

UNPUBLISHED DISSERTATIONS

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

ONLINE RESOURCES

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

WEBSITES

- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

ANALYSIS OF DATA MINING METHODOLOGY IN MEDICAL DIAGNOSIS

K.INDHUMATHI
HEAD
DEPARTMENT OF COMPUTER SCIENCE
SRI AKILANDESWARI WOMEN'S COLLEGE
VANDAVASI

ABSTRACT

The present study about the data mining methodology applied to the medical diagnosis no methodology is developed for all kind of medical diagnosis which gives higher performance in accuracy. No unique algorithm has been developed for different kind of medical diagnosis problem. Depending on the medical problem to be diagnosed, the researchers must choose the appropriate methodology in such a way to gain the higher performance in accuracy. Not all the algorithms gain the same accuracy: the appropriate algorithm is to be applied by comparing the performance of each. Still there are waste areas of medical science datasets are there to diagnose by applying the data mining methodology. It is a challenging area of the researchers to finding out an appropriate methodology for the specific problem. The aim of this paper is to study and analyze the various data mining methodologies used to diagnose the various medical related diseases, and to check the accuracy of the methodology.

KEYWORDS
Medical diagnosis, data mining technology.

1. INTRODUCTION

Data mining is the concept of extracting the knowledge from the available information. Different Methods used to mine various kinds of Data. Even number of methods is there in data mining the challenge is selecting a suitable method to mine the selected data. This paper analyses the different methods were applied in medical data mining and the results of the methods.

Most previous research on disease diagnosis uses statistical methods for modeling. Statistical methods, however, require assumptions and usually adopted to analyze linear data. They are thus less capable of dealing with massive and complicated nonlinear and dependent data [1, 2], such as the enormous data collected continuously through health examination and medical treatment [3]. Therefore, more effective approaches are needed to analyze massive and complicated data. For example, data mining techniques may provide a useful solution.

Over the past few decades, Data mining techniques, such as genetic algorithms, artificial neural networks, fuzzy sets, rough sets, and inductive logic programming, have been introduced for application to medical-related fields.

The analysis is conducted in different medical data sets like hepatitis, heart disease, dermatology disease, and diabetes. The analyses have shown that it is very difficult name a single data-mining algorithm to be the most suitable for the medical data. The results gained for the algorithms were very similar. However, the final evaluation of the outcomes allowed singling out the Naïve Bayes to be the best classifier for the given domain. The Multilayer Perception followed it and the C4.5.

2. COMPUTATIONAL INTELLIGENCE (CI)

Medical diagnoses are impossible to solve the particular problem effectively. The computational intelligence is very much important for smart solutions of imperfect domains. Most of the medical domain is not well define the decision tree methodology can be applied to analyze those dataset. With the computational intelligence we can easily automates the decision making with less assistance from experts.

3. PREDICTION OF BREAST CANCER

There are three methods are applied to predict the surveillance of breast cancer [12]. The two popular data mining algorithms Artificial Neural Networks and decision tree methods along with statistical method logistic regressions are applied. All the three methods develop the prediction model for the large database about 200000 samples. The performance of each model is compared. Among t three methods, the decision tree gives the accuracy of 89.2%. From the result of the paper [12], the decision tree methodology gives more accuracy and the method well suits for medical diagnosis.

4. LIVER DISEASE DIAGNOSIS

It is difficult to diagnose the liver disease in the initial stage. Early diagnosis of liver disease is more important. The two data mining methodology, Classification and Regression Tree (CART) and Case-based Reasoning (CBR) techniques were used. Each method is applied individually to raise the accuracy of liver disease diagnosis. Paper uses an intelligent model for the diagnosis of liver diseases, which integrates CART and CBR. The two methods are used for different purposes. The adaptive CART is to identify the patient suffer from liver disease, where as the CBR is use to identify the type of liver disease. In this CART gives the accuracy of 92.94% to identify the patients suffer from liver disease. The CBR gives the accuracy of 90% to identify the type of liver disease. The integration of CART and CBR techniques diagnose the liver diseases with considerable accuracy. The CART is helpful to diagnosis the liver diseases that is very helpful to diagnose the liver disease that is very helpful to the physician for treatment. In addition, the CBR gives the similar and dissimilar liver problems and it is a great assistance to reduce the diagnostic error and it help to improve the treatment.

Each methodology was implemented by using its own algorithms. The performance of each algorithm is to be checked to select the appropriate algorithm in such a way to maximize the performance of the result and gain more accuracy. When applying the different kind of algorithm for the same medical datasets the accuracy differs from one another. Researchers have been conducted to check the performance analysis of algorithms.

5. HEPATITIS AND HEART DISEASE ANALYSIS

The C4.5 algorithm has been use in hepatitis data sets and the decision tree is generated. The accuracy has been checked. It has less accuracy than when it applied in breast cancer dataset [14]. When the C4.5 algorithm is applied for the heart diseases, it also gains very less accuracy. The Naïve Bayes algorithm is applied for the same set of heart disease dataset it gives the accuracy better than the C4.5. In the same way the multilayer perception method has been applied for different kinds of medical datasets and the accuracy is analyzed and proved that it also gives us the less accuracy. In all the cases, the Naïve Bayes Classifier gives the higher accuracy than C4.5 and multilayer perception methods. Paper [14] concludes that the Naïve Bayes Classifier is the best methodology than the C4.5 and Multilayer perception.

Data of hepatitis are collected and training dataset is made [15]. Data mining methodologies such as classification, clustering, and regression are applied. In order to discover the classification rules, ant miner algorithm is used. The proposed method extracts the classified rules using fuzzy based ant miner algorithm. The training set is taken and the algorithm is applied initially for classifying the categorical attributes. For rule generation the heuristic functions are used. It also generates best rules for classification. Next, the optimized rules are obtained by performing rule pruning based on the quality functions. Using the test cases

the accuracy of the designed system is determined. The algorithm brings out the better quality of the classified rules. This project is designed in such a way to obtain the best rules with maximum accuracy. The proposed methodology predicts the hepatitis in the earlier stage and is helpful to the doctors [15].

6. DIAGNOSIS OF ALZHEIMER DISEASE

The classification methodology is used to diagnose the Alzheimer disease. In this paper [16], a new method for the automated diagnosis of diseases based on the improvement of random forests classification algorithm is proposed. More specially, the dynamic determination of the optimum number of base classifiers composing the random forests is addressed. This algorithm can be applied for eight biomedical datasets like breast cancer, diabetes and heart diseases and the test cases are proved. Paper [16] concludes classification methodology gains better accuracy for those eight biomedical datasets.

7. AIDS/HIV DATASET

The Association rule-mining algorithm has been proposes to analyze the HIV datasets. The algorithm mined interestingness and surprising rules. The rules revealed many interesting information about CD4 cell counts, RNA levels, drugs between treatment and various patients. The algorithm also supports missing an incomplete data. It also supports large volume of data.

8. DEDUCTING THE CANCER DISEASE

The Bayesian classifier is used to deduct the cancer disease [18]. Here the Bayesian multi resolution system is used to identify the cancer-affected region. The digitized images are decomposed and the Bayesian classifier is applied to check the resolution of the image in terms of low, intermediate and high. The algorithm classifies the image by applying different resolutions. The random forest is generated by combining the multiple decision tree classifiers.

9. CONCLUSION

After the detailed study about the data mining methodology applied to the medical diagnosis no methodology is developed for all kind of medical diagnosis which gives higher performance in accuracy. No unique algorithm has been developed for different kind of medical diagnosis problem. Depending on the medical problem to be diagnosed, the researchers must choose the appropriate methodology in such a way to gain the higher performance in accuracy. Not all the algorithms gain the same accuracy: the appropriate algorithm is to be applied by comparing the performance of each. Still there are waste areas of medical science datasets are there to diagnose by applying the data mining methodology. It is a challenging area of the researchers to finding out an appropriate methodology for the specific problem.

REFERENCES

1. Akahoshi M, Amasoki Y, Soda M. Correlation between fatty liver and coronary risk factors: a population study of elderly men and women in Nagasaki, Japan. Hypertension Research, 2001; 24:337-43.
2. Becerra-Fernandez I. The role of artificial intelligence technologies in the implementation of people-finder.
3. Cios KJ, Moore GW. Uniqueness of medical data mining. Artificial Intelligence in Medicine 2002; 26: 1-24.
4. Doyle, S. A Boosted Bayesian Multiresolution Classifier for Prostate Cancer Detection from Digitized Needle Biopsies. Biomedical Engineering, IEEE Transactions on. 2012.
5. Dursun Delen, Glenn Walker, Amit Kadam. Predicting breast cancer survivability: a comparison of three data mining methods 2004.
6. Evans CD. A case-based assistant for diagnosis and analysis of dsymorphic syndromes. International Journal of Medical Informatics 1995; 20:121-31.
7. George Dounias, Derek Linkens, Adaptive systems and hybrid computational intelligence in medicine.
8. K.Rameshkumar, A novel algorithm for association rule mining from data with incomplete and missing values. 2011.
9. Kamila Aftarczuk. Evolution of selected data mining algorithms implemented in Medical Decision Support Systems.
10. Kukar M, Kononenko I, Silvester T. Machine learning in prognosis of the femoral neck fracture recovery. Artificial Intelligence in Medicine 1996; 8:431-51.
11. Madhusudhanan, S. Fuzzy Based Ant Miner Algorithm in Data Mining for Hepatitis. IEEE Engineering in Medicine and Biology Magazine 2010.
12. Omagari K, Kadokawa Y, Masuda J, Egawa I, Sawa T, Hazama H, et al. Fatty liver in non-alcoholic non-overweight Japanese adults: incidence and clinical characteristics. Journal of Gastroenterology and Hepatology 2002; 17:1098-105.
13. Rong-Ho Lin. An intelligent model for liver disease diagnosis 2009.
14. Sacha JP, Cios KJ, Goodenday LS. Issues in automating cardiac SPECT diagnosis. IEEE Engineering in Medicine and Biology Magazine 2000; 19:78-88.
15. Schmidt R, Gierl L. Case-based reasoning for antibiotics therapy advice: and investigation of retrieval algorithms and prototypes. Artificial Intelligence in Medicine 2001; 23:171-86.
16. Setiono R. Extracting rules from pruned neural networks for breast cancer diagnosis. Artificial Intelligence in Medicine 1996; 8:37-54.
17. Tan K, Yu Q, Heng C, Lee TH. Evolutionary computing for knowledge discovery in medical diagnosis. Artificial Intelligence in Medicine 2003; 27:129-54.
18. Tripoliti, E.E., Fotiadis, D.I.: Manis, G. Automated Diagnosis of Diseases Based on classification: Dynamic Determination of the Number of Trees in Random Forests Algorithm. IEEE Engineering in Medicine and Biology Magazine 2012.

REQUEST FOR FEEDBACK

Dear Readers

At the very outset, International Journal of Research in Computer Application & Management (IJRCM) acknowledges & appreciates your efforts in showing interest in our present issue under your kind perusal.

I would like to request you tosupply your critical comments and suggestions about the material published in this issue as well as on the journal as a whole, on our E-mail**infoijrcm@gmail.com** for further improvements in the interest of research.

If youhave any queries please feel free to contact us on our E-mail infoijrcm@gmail.com.

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward an appropriate consideration.

With sincere regards

Thanking you profoundly

Academically yours

Sd/-
Co-ordinator

DISCLAIMER

The information and opinions presented in the Journal reflect the views of the authors and not of the Journal or its Editorial Board or the Publishers/Editors. Publication does not constitute endorsement by the journal. Neither the Journal nor its publishers/Editors/Editorial Board nor anyone else involved in creating, producing or delivering the journal or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in the journal, nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of information/material contained in the journal. The journal, neither its publishers/Editors/ Editorial Board, nor any other party involved in the preparation of material contained in the journal represents or warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such material. Readers are encouraged to confirm the information contained herein with other sources. The responsibility of the contents and the opinions expressed in this journal are exclusively of the author (s) concerned.

ABOUT THE JOURNAL

In this age of Commerce, Economics, Computer, I.T. & Management and cut throat competition, a group of intellectuals felt the need to have some platform, where young and budding managers and academicians could express their views and discuss the problems among their peers. This journal was conceived with this noble intention in view. This journal has been introduced to give an opportunity for expressing refined and innovative ideas in this field. It is our humble endeavour to provide a springboard to the upcoming specialists and give a chance to know about the latest in the sphere of research and knowledge. We have taken a small step and we hope that with the active co-operation of like-minded scholars, we shall be able to serve the society with our humble efforts.

Our Other Journals