# Evaluation of Internet Addiction Disorder in Students

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Abstract - Internet Addiction Disorder (IAD) is one of the most widely social problems among the young college students. This study tried to predict young people usage of internet and addicted people toward the utilization of internet. In this paper, the overview of internet addiction disorder is evaluated using some Data mining classification techniques to classify the internet addiction survey primary sample data are reviewed. This comprehensive survey presents guideline to plan and evaluate algorithms to be used for the analysis of internet addiction and related data.

Keywords: Internet Addiction Disorder, Data mining classification technique.

## I. INTRODUCTION

Internet Addiction issue , now all the more generally called problematical Internet use(PIU), enthusiastic Internet use, Internet abuse, testing PC use, neurotic PC utilize, or scatter, alludes to exorbitant PC use which intrude with everyday life. Internet need has been called Internet reliance and Internet compulsivity.

a. *Problems of internet users*
- segregation
- Relationship possessions
- Social skills
- healthiness

Every one of these clutters is the symptomatic appearing of internet addiction.

b. *Types of Internet addiction*
- Information burden, an excessive amount of web surfing prompts diminished effectiveness at work and less association with relatives.
- Compulsions, An excess of time spent in online exercises, for example, gaming, exchanging of stocks, betting and even barters regularly prompts overspending and issues at work.
- Cybersex habit, Too much surfing of porn locales frequently ruins genuine relationship.
- Cyber-relationship compulsion, Extreme utilization of long range interpersonal communication destinations to make connections instead of investing energy with family or companions might wipe out genuine relationships.

c. *Physical Symptoms for Internet addiction*
In grown-ups, side effects of web addiction might clear in work or in social circumstances
- Weight pick up or misfortune
- refuse in physical wellness
- Carpal tunnel disease
- Dry eyes
- Eye pressure
- Migraine headaches
- Back aches
- refuse in individual hygiene
- Changes in cerebrum

d. *Emotional Symptoms for Internet addiction*
- thoughts of guilt
- nervousness
- sadness
- untruthfulness
- joyful feelings when in front of the computer
- incapable to keep schedules
- No sense of time
- Defensiveness
- Avoiding doing work
- Disturbances

*Internet Users in India:*
India will go beyond United States as the second-largest market in the world by December 2014. According to the 'Internet in India 2014' report published by Internet and Mobile Association of India and IMRB International in a huge growth of 32 per cent, the number of internet users in India will reach to 302 million by the end of this year. An Internet and Mobile Association of India (IAMAI) and IMRB International released report among the many interesting findings in the 'Internet in India 2015'. By, India will have 402 million Internet clients by December 2015 and its fanatic base has expanded by 49 for each penny contrasted with a year ago. In October, 317 million Indian clients got to Internet. It is not stunning any longer that versatile is in charge of a major measure of this development. In urban India, the versatile internet client base developed by 65 for every penny over a year ago to reach 197 million in October 2015. In Rural India, the portable Internet client base is evaluated to reach 87 million by December 2015 and 109 million by June 2016. Online correspondence, open systems administration, and relaxation are the top purposes behind getting to the Internet. Just 24 for each penny of urban clients and 5 for every penny of country clients got to the Internet for web shopping.

Wen Li(2015) et.al., done two IA/PIU measures such as Young's Diagnostic Questionnaire and the Compulsive Internet Use Scale are used for identifying the Qualitative method investigation are those who affected in interpersonal & situational triggers of intensive internet use,adverse physiatric psychosocial etc. It mainly focuses on group discussion for self identifying the internet overusers. Benefits of these two measures are to improve qualitative validity of the results through data triangulation[1]. Amit Malviya1 (2014) et al., proposed the theory on internet addiction among 242 MGM Medical college students and also find the occurence of disorder. Simple random sampling was selected for cross

sectional study. Interpersonal interviews were conducted to the students. 'Internet Addiction Test' is taken among these students through questionnaire developed by Dr. Kimberly S. Young in 1998.164 (67.8%) males and 78 (32.2%) females were participated. on the whole analysis, 23 (9.5%) subjects were identified as internet addicts. From 23(9.5) subjects, 15 (6.1%) were males and 8 (3.3%) were females. sushma mishra (2014)et al., supports the research is observing the students usage of internet and the impact on their academic success. The survey was conducted at a small private university. The survey was based on Questionarie which was academic success and Internet addiction. The data was analyzed using SPSS v21. Ordinal scale is used for measuring the academic performance of each student based on their GPA. Here the data conclude that students are advised to limit the usage of internet which does not affect their academic performance. Yan Zhoua, (2011) et al., aims to examine Internet addiction (IA) using voxel-based morphometry (VBM) analysis on high-resolution T1-weighted Structural magnetic resonance images. In adolescents brain gray matter density (GMD) changes due to internet addiction. Using the sample test, the GMD between the test groups are compared. There is some structural changes in brain is detected with lower GMD, but not in white matter.

## II. INTRODUCTION ABOUT DATA MINING:

Information mining, the taking out of subtle insightful information from incomprehensible databases, is a powerful new development with amazing potential to offer associations some assistance with concentrating on the most critical information in their data dissemination focuses. Data mining gadgets predict future examples and works on, allowing associations to make proactive, learning driven decisions. The motorized, prospective examinations offered by data mining move past the examinations of past events gave by survey mechanical assemblies regular of decision sincerely steady systems. Data mining gadgets can answer places of work that generally were too much, making it difficult to decide. They scour databases for disguised cases, finding farsighted information that authorities may miss in light of the way that it lays outside their cravings.

*Classification Algorithm*
Basic principle of Classification is information mining strategy based on machine learning. Classification arranges information into predefined set of classes. Arrangement strategy based on scientific systems, for example, decision trees, rule based induction, straight programming, neural networks and statistics. Basic learning tasks of Classification algorithm involve supervised learning and unsupervised learning. Components of Information Mining include Data type, Application area, Techniques and Task. Calculations needs i) Model Representation (discoverable information) ii) Model Assessment (predictive precision of the secondary designs) iii) Inquiry systems. Two search technique: one is parameter (which advance the model assessment criteria) and another is model inquiry (when the structure of the model is obscure) iv) Learning Bias (feature choice and Pruning).
1) *Naïve Bayes*- Naïve Bayes is one of the machine learning classifier. It is the probabilistic model that classifies problem *instance*. It is utilized for assigning class labels using particular feature which is independent. Naïve Bayes

is simple without any iterative parameter estimation suits for very large dataset.
2) *JRip* - Repeated Incremental Pruning to Produce Error Reduction (RIPPER) is one of the essential and most famous calculations. Classes are inspected in expanding size and a beginning arrangement of guidelines for the class is created utilizing incremental diminished blunder pruning. In this study, we assessed RIPPER through JRip, an execution of RIPPER in WEKA with the parameters: folds = 10; minNo = 2; enhancements = 2; seed = 1; usePruning = genuine.
3) ZeroR- It is the easiest system which depends on the recurrence of target. ZeroR is valuable for deciding a pattern execution for other grouping strategies. This method based on frequency of target and it is utilized for only pattern execution.
4) J48- J48 classifier is one of the decision pruning tree algorithms which build binary tree. The decision tree pruning best suits classification issue. Binary tree relies on each attributes in the database.
5) *RepTree*- Reduced Error Pruning Tree ("REPT") build various trees in various iterations and finally selects one of the best. It is also known as decision tree pruning. Pruning based on the mean square error. This uses training, validation & test sets - effective approach if a large amount of data is available.

*WEKA*
A. Data mining tool utilized for classification is Waikato Environment for Knowledge Analysis (WEKA) which having group of machine learning algorithms are used for implementing the internet addiction dataset.

Weka website (Latest version 3.6):λ
− http://www.cs.waikato.ac.nz/ml/weka/ Weka Manual:λ
−http://transact.dl.sourceforge.net/sourcefor
ge/weka/WekaManual-3.6.0.pdf

*Data Set*
There are 100 numbers of instances and 7 numbers of attributes in dataset had taken from the survey with questionnaire filled out by student of various departments.

## III.TESTING AND RESULT

In this paper, various classification techniques are compared and analyzed: Mean Absolute Error (MAE): It is the statistical measure which calculates approximately from the average of the absolute magnitude of the individual errors.
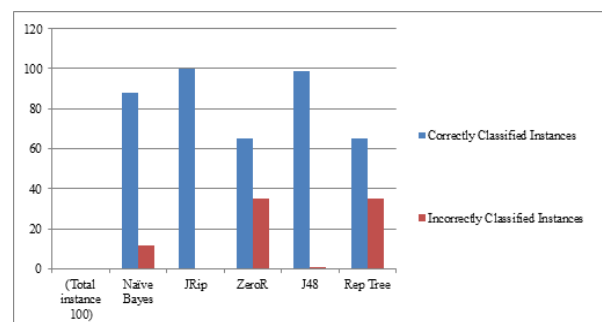


Fig1. Number of Classified Instances for Data Set

Table 1.Comparison of the different classifiers

| Algorithm (Total instance 100) | Correctly Classified Instances | Incorrectly Classified Instances | Time Taken (Seconds) | Kappa Statistics |
|---|---|---|---|---|
| Naïve Bayes | 88 | 12 | 0.01 | 0.749 |
| JRip | 100 | 0 | 0 | 1 |
| ZeroR | 65 | 35 | 0.02 | 0 |
| J48 | 99 | 1 | 0 | 0.9796 |

It has same magnitude but to some extent smaller than the root mean squared error. Root Mean-Squared Error (RMSE): It just the differences between values predicted and the values actually observed. It is used to measure the accuracy. It is small when it is ideal. Time: Time to build particular model.
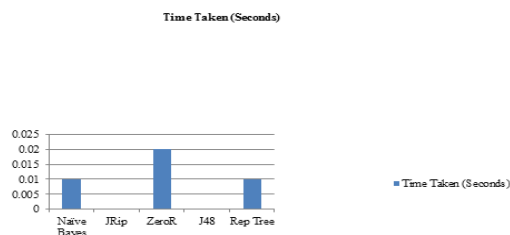


Fig2. Time Taken Parameter of Datasets

Comparison of various classification algorithms are shown in Table 1. The analysis is done on data set which has 100 instance and 4 attributes. From the table 1, time taken by JRip and J48 classifiers is zero which shows good performance. So, in terms of time taken by the JRip and J48 classifier algorithm is the best performance among all other algorithms.

Table 2. Comparison of MAE and RMSE classifiers

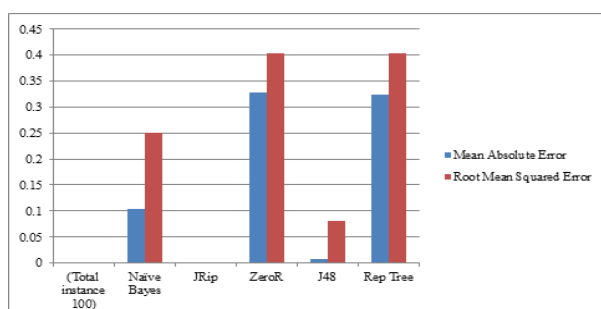| Algorithm (Total instance 100) | Mean Absolute Error | Root Mean Squared Error |
|---|---|---|
| Naïve Bayes | 0.1046 | 0.2506 |
| JRip | 0 | 0 |
| ZeroR | 0.3276 | 0.4026 |
| J48 | 0.0067 | 0.0816 |
| Rep Tree | 0.3237 | 0.4026 |



Fig3. Error Evaluation Parameters for Datasets

Table 2 shows error rate comparison of the classifiers. MAE and RMSE analyzed the various model that shows JRip classifier have minimum error rate and good performance when compared to other algorithms.

## IV.CONCLUSION

The five different classification algorithms are used and experimentally evaluated using WEKA tool for identifying the people who are addicted in an internet. Based on number of attribute classified, time and error rate the classification algorithm is experimentally compared using ten folds cross validation. JRip classifier well suits with taken dataset and perform better than other. Naïve Bayes and Rep Tree had average performance. ZeroR algorithm had least performance with dataset. Jrip concludes that 5 students are highly addicted, 65 students are moderately addicted and remaining 30 students have no internet addiction. After analyzing the performance of classifiers with tables and graphs in our study Jrip algorithm is recommended among all five classification algorithms.

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