An internship report submitted to the [Type your department name here] in partial fulfillment of the requirements for the degree of
[Type your degree name here]

Report On

[Type Your Title Here]

By

Student Full Name

Student ID

[Type your department name here]
BRAC University
[Month] [Year]

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Declaration

It is hereby declared that

1. The internship report submitted is my/our own original work while completing degree at BRAC University.
2. The report does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The report does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I/We have acknowledged all main sources of help.

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| **Student’s Full Name & Signature:** |
| **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****Student Full Name**Student ID  |

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| **Supervisor’s Full Name & Signature:** |
| **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****Supervisor Full Name**Designation, DepartmentInstitution |

Letter of Transmittal

Full name of Supervisor

Designation,

Department

BRAC University

66 Mohakhali, Dhaka-1212

Subject: [Type your subject here]

Dear Sir / Madam,

[ SAMPLE: This is my pleasure to display my entry level position provide details regarding' Recruitment and Selection Procedure of XYZ Bank Ltd', which I was appointed by your direction.

I have attempted my best to finish the report with the essential data and recommended proposition in a significant compact and comprehensive manner as possible.

I trust that the report will meet the desires.]

Sincerely yours,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Full Name

Student ID

BRAC Business School

BRAC University

Date: Month Day, Year

Non-Disclosure Agreement

[This page is for Non-Disclosure Agreement between the Company and The Student]

This agreement is made and entered into by and between [Name of Company] and the undersigned student at BRAC University…………………………………….

Acknowledgement

This is an optional page. Use your choice of paragraph style for text on this page

Executive Summary

[Abstract or executive summary paragraphs should be unintended. Abstracts are limited to 150 words. Abstract text must fit on a single page. Keywords may appear alone on the same page or a second page.

Your choice of paragraph style for text on this page]

**Keywords:** You may include up to six keywords or phrases. Keywords should be separated with semicolons.

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List of Acronyms

|  |  |
| --- | --- |
| ODI |  One day International |
| T20 | Twenty Twenty |
| IPL |  Indian Premier League |
| CPL |  Caribbean premier League |
| BPL |  Bangladesh Premier League |
| MR |  Runs scored by Home team |
| OR |  Runs scored by the opponent team |
| MRN |  Home Team Run Rate |
| ORN |  Opponent Team Run Rate |
| Batord |  Batting Order |
| MW |  Home Team Wicket |
| OW |  Opponent Team Wicket |
| MAE |  Mean Absolute Error |
| RMSE |  Root Mean Squared Error |
| LBW |  Leg Before Wicket |
| NBA |  National Basketball Association |
| CSK |  Chennai Super Kings |

Glossary

|  |  |
| --- | --- |
| Thesis | An extended research paper that is part of the final exam process for a graduate degree. The document may also be classified as a project or collection of extended essays. |
| Glossary  | An alphabetical list of key terms |
|  | This is an optional page and can be removed if not used. |
|  | Use one table row for each item to allow sorting using Word’s table tools. |
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Chapter 1
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1.1 [Type your Chapter Sub-Heading Here]

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Chapter 3
[Type your Chapter Name Here]

Collection of a large dataset is the main perspective of a data min-ing and machine learning research and collecting data with proper understanding from reliable source is most important. In our re-search, we needed a strong and reliable data source which we found in Statsguru. Statsguru is ESPN Cricinfo's cricket statistics main-tenance database, where all the data relating to all the matches of cricket are saved. In this database system, all the match's data are stored with live ball by ball commentary. There are lots of di erent kinds of formats of data and statistics however we have our own for-mat of data collection in order to design our predictive system. In our data-sets we have chosen a team as a home team. Depending on that we have divided the match attributes. The at-tributes are: Venue, runs of home team in a segment (MR), runs of opposition team in a segment (OR), run rate of home team in a segment (MRN), run rate of opposition team in a segment (ORN), teams batting order (which team batted rst, which team second), number of wickets fallen for home team (MW), number of wickets fallen for opposition team (OW) and nally the result of the match. Statsguru's system is well organized and quite easy to understand. Information were perfectly grouped in di erent sections which shows di erent kinds of statistics about team and individual records. On the right side of the website they have a tab called `Records', where data are divided into di erent divisions and sub-divisions such as Test Matches, One Day Internationals, T20 Inter-nationals as well as several domestic competitions like Indian Pre-mier League (IPL), Caribbean Premier League (CPL), Bangladesh Premier League (BPL), England's Natwest T20 blast, Australia's Big Bash T20 league with some other domestic First Class (4-day matches such as Ranji trophy ) and List A (One day 50 over matches) tournaments. From all of these information, we have collected the T20 International match data along with Indian Premier League data.

their country, then we would mention the venue as `H' (H represents Home venue) and if the match was played in Pakistan then the Venue would have been `A' (A represents Away Venue). Secondly, Australia batted rst so the `Batord' attribute is 1, on the other hand it would be 2 if they We choose Australia as the home team, then from the list of match results we have year by year data of Australia. We are going to take a match between Australia and Pakistan that played in 10 Septem-ber 2012, number 10 row as an example to elaborate our work. We opened the match with the Pakistan and went to the over compar-ison. Attributes that mentioned above, we started lling those at-tributes with proper data accordingly. Firstly, we collected data from 0-6 overs. In the rst attribute named as Venue is `N' (N represents neutral Venue) because the match played in Dubai. It is not home ground for any team. If Australia played the match in their country, then we would mention the venue as `H' (H represents Home venue) and if the match was played in Pakistan then the Venue would have been `A' (A represents Away Venue). Secondly, Australia batted rst so the `Batord' attribute is 1, on the other hand it would be 2 if they tuting the current run from the run we have till the sixth over. Same procedure followed for the OR. Both the MRN and ORN calculated by dividing the MR and OR by 10 for the reason that it is for total 10 overs. From example, we can see that Australia took 103 runs from 7-16 over whereas Pakistan only managed to score 39 runs in these 10 overs. The MRN and ORN was 10.3 and 3.9 respectively. The wicket fall in these 10 over period was 3 wickets which is same for the both team.

Figure 1: Data Collection

tuting the current run from the run we have till the sixth over. Same procedure followed for the OR. Both the MRN and ORN calculated by dividing the MR and OR by 10 for the reason that it is for total 10 overs. From example, we can see that Australia took 103 runs from 7-16 over whereas Pakistan only managed to score 39 runs in these 10 overs. The MRN and ORN was 10.3 and 3.9 respectively. The wicket fall in these 10 over period was 3 wickets which is same for the both team.

Figure 2: Dataset of Final Segment

Chapter 4
[Type your Chapter Name Here]

As we have divided our total work into 3 segments . First of all, we selected our rst 6 over data set and we have implemented the al-gorithm over it. Then we have analyzed the data visually and gure out the distribution of values. The following metrics were used to determine the performance of our model: Time taken to build the model, Kappa statistics, mean absolute Error, Root Mean Squared Error, Relative Absolute Error, Prediction accuracy.

4.1 [Type your Chapter Sub-Heading Here]

Bat First: In our modeling, we used all the matches played by Chennai Super Kings (CSK) against the other teams in IPL. All the data classi ed for training set and test set are from that data-set. In this batting rst part, we are showing that the winning chance of CSK when batting rst.Sample data-set were matches played be-tween Chennai Super Kings and Mumbai Indians in IPL history. Here is the decision tree: Evaluation of Training Set: Below gure showing the Accuracy of the training set for the batting rst. We used 70 % of the data to create a training set which gives us the accuracy of 78 %. Training set is generally used in order to building up a model.

|  |  |
| --- | --- |
| Factors | 48 |
| Correctly Classi ed Instances | 39 |
| ncorrectly Classi ed Instances | 22 |
| Accuracy | 78% |

Table 1: Training set Batting First

References

*Note: The style of quotations, footnotes, and bibliographic references may be prescribed by your department. If your department does not prescribe a style or specify a style manual, choose one and be consistent. Further information is available on the web site of the Ayesha Abed Library (http://library.bracu.ac.bd/style-guides-and-resources).*

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| [1]  | V. V. Sankaranarayanan, J. Sattar and L. S. Lakshmanan, "Auto-play: A data mining approach to ODI cricket simulation and prediction.," in *SIAM International Conference on Data Mining*, 2014.  |
| [2]  | S. Brian, "The Problem of Shot Selection in Basketball," *PLoS One,* 25 January 2012.  |
| [3]  | T. Tulabandhula and C. Rudin, "Tire Changes, Fresh Air, and Yellow Flags: Challenges in Predictive Analytics for Professional Racing.," *Big data,* 2014.  |
| [4]  | R. D. Choudhury and P. Bhargava, "Use of Artificial Neural Networks for Predicting the Outcome," *International Journal of Sports Science and Engineering,* vol. 1, no. 2, pp. 87-96, 2007.  |
| [5]  | F. Duckworth and T. Lewis, Your Comprehensive Guide to the Duckworth/Lewis Method for Resetting Targets in One-day Cricket, University of the West of England, 1999.  |
| [6]  | I. Bhandari, E. Colet, J. Parker, Z. Pines, R. Pratap and K. Ramanujam, "Advanced Scout: Data Mining and Knowledge Discovery in NBA Data," *Data Mining and Knowledge Discovery,* pp. 121-125, March 1997.  |

Appendix A.

An Example of an Appendix

Appendices should be used for supplemental information that does not form part of the main research. Remember that figures and tables in appendices should not be listed in the List of Figures or List of Tables. Refer to the Thesis Template Instructions for more information.