Ilford cricket team data analysis project essay sample

The problem I am investigating is the process in which information from a cricket match is analysed in view of the scores recorded from a match.

The problem is that the cricket team captain and coach have a very hard task to change tactics during a match, and after a match. Things such as runs per over, runs needed for victory etc are all needed during a match for tactics, and after a match to see what went wrong.

They must do many manual calculations to work out such things and this can cause many errors, as human error is inevitable. Also they cannot draw graphs of data to analyse the data easily, because this requires skill and time.

This problem can lead to many problems such as inaccurate analysis, and therefore error in judgement over tactics. This can inevitably have an overall effect on the game as losing and winning a game can rely on this. This can all be solved with the use of computers.

Feasibility Study

Realistic appraisal of the feasibility of potential solutions.

The feasibility stage of my project involves five main sections; these sections include the Technical, Economic, Legal, Operational, and Scheduler sections. These will have to be considered before the analysis to see if this project will be a feasible for the cricket team. I must consider the current software and hardware the cricket team already has available to him.

Technical Feasibility

Technical feasibility means investigating whether the technology exists to allow for a computer system such as the one I have proposed.

Clearly the technology is available and so this means that this project is technically feasible.

This project will require on the shelf software, so this is easily available and economic compared to bespoke software.

Also the actual hardware requirements are not very demanding and could be already available to the team. This is all extremely important because this is such a big step for the team.

Economic Feasibility

Economic Feasibility is to view the costs and benefits of the potential system, both running costs and initial costs and then see if the benefits are greater than the costs, which if it is, means that the project is economically feasible.

As the team is losing a lot of time through having to record scores manually, and is often making mistakes, it will mean that the new system will make it more efficient and worthwhile. Which will mean data is analysed quicker and so the coach and the captain can quickly change tactics and hopefully keep better tactics and win games. I have already mentioned this project is fairly economic in its initial costs, as the hardware and software are very cheap.

Legal Feasibility

Legal feasibility means that your system should comply with the data protection act and the security rights of any data used in your project.

The system should overall comply with the rules of the data protection act. In order to do this the system should be password protected so only authorised personnel can access the system. So if the system is created in this way, then the system will be legally feasible.

Operational Feasibility

Operational feasibility considers the social factors, which will affect the everyday working of the people using the system.

This will not be too much of a change for the cricket team because they have manually been doing the job, so it will mean that they can fairly easily operate the new system.

This system is operationally feasible because the team is already trained on using the current system and so knows how the cricket game is scored. The only problem might be the level if computer literacy that the cricket team has, but because of the simplicity of the system, the team will be able to operate the system with very little training. Therefore very soon the team will be able to operate the systems efficiently and so this means that the system is operationally feasible.

However a user manual will be needed, in order to provide the basic instructions on how to use the system.

Schedule Feasibility

Schedule feasibility looks at the time span needed to introduce the new system and whether after its introduction there will be enough time to learn how to use it and use it efficiently.

The answer to this is very obvious. Due to the fact, that it will take very little time to set-up this system as the software and hardware is available immediately and the training needed to use the system is very small, so the system will be ready to use very quickly after it has been made. And so means that this project will be feasible, in terms of schedule.

The team will be hoping that the system can be built as soon as possible as the team is presently losing a lot of valuable time and would like to become more efficient as soon as possible.

Investigation and Analysis

I started my investigation by firstly posing a questionnaire to the Ilford Cricket Team captain, Inam Arif.

Questionnaire

Question 1

I Are there any problems with the current system?

YES/NO

II If yes. Outline the problems below.

Question 2

I What are the possible solutions?

Question 2

I What are the needs for you of my system?

II What should the objectives of my report be in order for your needs to be fulfilled?

Analysis of Questionnaire

The interview that took place with the cricket team captain of Ilford cricket team, Inam Arif, on the 11th of November, in which I posed the above questionnaire to him, was very helpful for both him and me.

It made me aware of the exact specifications that my system will need, to maximise the benefit for Inam and his team.

It was a very successful interview as I do not now need a secondary interview as all aspects of what I needed to know have been covered, however a contact number for Inam has been taken and if there are any further questions I can contact him to query him further.

A copy of the answered questionnaire can be seen in the appendix.

Identification of the prospective user (s), and identification of user's needs and acceptable limitations (using appropriate methods – summarised as necessary)

The prospective user of the system will be the team captain and the coach, the coach will use the system to analyse data from a match and pass the information to his captain to act upon it.

The coach will need full access to the system because he will need to input information into every part of the system.

The captain will not need access into the system, because the coach will be verbally telling him actions to take, however if the captain does wish to see his teams position during the game, then he can be allowed view only access to the data, in a shortened form, with only the appropriate data which he needs, set out for him.

To work out what the needs and acceptable limitations are, I needed to do some investigation myself into the possible problems a cricket team could face; I had to do some cricket analysis myself.

From the interview, I knew that his team were in constant problems of not knowing where his team stood during a match and if they were going at the required speed that they should be playing or if they had to change tactics to win the game.

They did not know at any stage, if their run rate was at the required rate or if they had enough wickets in hand to start to attack or if they should defend.

They also did not know at what stage the other team was at the same time, when they were batting or bowling.

To work out these things, he and his coach were constantly doing manual calculations working out run rates, total runs at each stage of the game, and total wickets and plotting these on a graph.

He said what they needed was a system where all they did was input the runs and the wickets taken each over and for a computer system to work out the run rates of each team and the total runs manhattan, and total wickets, and for the computer to output three outputs in which they could tell these three things in the form of a graph.

So to further decide on how I would go about implementing what Inam required. I decided to watch the Ilford cricket team play, I decided to keep score of the game and then analyse the game, working out such things as runs per over and runs needed for the other team etc. I discovered that I faced the following problems using this manual method:

1. I had the problem of not knowing at any one stage of the game, which team was in a stronger position and what kind of situation each team was in, so it was not possible for the captains and the coach to change tactics etc.

2. Also mistakes were a constant problem. I kept making mistakes in calculations and not putting the right data where it belonged.

3. I could not analyse the scores very easily, as there was no other forms of presenting the data other than just simply reading off scores, there was no graphs etc.

4. I could not create interesting links between the data and make no comparison, as there was not sufficient information or presentation of data to do this.

5. I could not stop in the middle of the game and predict who was winning the game or who had a better chance of winning, I just knew at the end who had won and who had lost.

6. The verification and validation of my work was very hard and time consuming, but was necessary to insure that everything was very accurate.

7. Also backing up data can be a very hard process, because it involves writing up everything or photocopying everything again, which is very time consuming and also means that if anything is wrong once then it is wrong again and all the time is spent on copying it is wasted.

8. Also the writing can be worn out and can rub off leading to inaccurate results.

All these problems just lead to uncertainties and errors in judgements and an inefficient use of time and resources, which can be stopped by the use of computers.

From my research I have concluded that the Ilford team need a system which can tell them the situation of each team at any certain stage during the match, so they need outputs which show the progress during certain stages of the game.

In order to resolve all these problems, and looking at the best form of the solution for this problem I have decided to create a spreadsheet for the Ilford cricket team. So that the captain and the coach can easily predict things during a match and then accordingly change tactics and hopefully improve their game.

There are many possible ways in which I can design my spreadsheet to meet the specific requirements for the Ilford cricket team.

First I looked at the possible programs I could use to design my solution just in case the spreadsheet was not my ideal solution.

The programs that are available for me to design my system are:

1. Microsoft Word

This program is a very powerful word processor that allows you to create reports, letters, and other documents. I will not be using this because this program is for writing documents, and it is not intended for calculating data and making graphs and outcomes.

2. Microsoft PowerPoint

This is a presentation program that can be used for presenting work and ideas. PowerPoint is able to show slides one after another, and make it into an animation that helps put ideas across better. It is not intended for building my system, because it does not have the necessary tools

3. Microsoft Excel

This is a spreadsheet that is very powerful at computing complex financial related calculations. It is mainly used for creating various kinds of graphs from inputted data. This program would be ideal for my project as my project included inputting complex data in to a spreadsheet and getting outcomes using complex calculations and also creating various graphs to show data in an easier to understand form.

4. Microsoft Access

This program is a database, this means it was created to store vast amounts of data, which can be sorted and searched. This would not be a suitable program for designing my scoreboard as it does not carry out complex calculations nor does it create graphs.

Justification of chosen solution

So overall I have concluded that this task will need the use of a spreadsheet, a computer will be used as filing cabinets get old and rusty and they take up space where as the computer takes up less space and looks professional. Secondly it is not easy to edit and store things on paper and filing cabinets where as the computer can store things neatly and efficiently, and also the data does not get misplaced. Finally its not easy to make backups of information on paper because it will require a lot of time and work, whereas on a computer it is much more time efficient and easy to make backup on a computer. Using a tape drive and/or any other form of storage.

The spreadsheet will have minimal inputs and many outputs in order for me to work out outcomes/predictions and forecast the game to change tactics etc.

This would be very useful to the team because their work will be cut substantially and they will need less labour to work on the score analysis, so it will cut costs. Using the spreadsheet program MS Excel I will be able to carry out my work more efficiently and accurately because it will organise my work. I will be able to insert formulas into my spreadsheet, which will do all the calculations for me and therefore will leave me with no mistakes in calculations. Also MS Excel will create all graphs and outputs to forecast the game for me leaving me with no need to employ skilled workers whom know how to make graphs. So overall it will be cost effective efficient and very productive to use the spreadsheet on a computer and go ahead with the project.

A template of a scoreboard with all the appropriate formulas already inserted in the spreadsheet will be given to the coach. After the scores are input into the spreadsheet, the spreadsheet will automatically create graphs and tables to show progress and comparisons and analysis of the scores, for the coach to use and convey to his captain in order to change his tactics to benefit his team.

This problem to predict what happens next requires a method of forecasting which can be used in a spreadsheet by entering the formula in to next cells, which is related to the formula before.

This can help to predict things, which can happen next by inputting a thing into one cell and looking at the outcome, and then predict what can happen next. This is done by finding the next number in the series from the results and the trends of the previous results.

Also the spreadsheet can be used to predict if the predicted target is what the team achieved and if not what was the difference in them reaching this target.

Using the spreadsheet you will be easily be able to see anticipated results and what actually happened and also be able to predict instantly what is happening in between a game and who is in the stronger position of the two teams.

This is all what is needed by a coach and captain of a team to improve his quality of work and also his tactics and hopefully win games.

Data Flow Diagram

Current System

SYMBOL KEY: = ENTITY = PROCESS = DATA FLOW

FIGURE 1. 1

Process Flowcharts

Data Flow Diagram

Proposed System

SYMBOL KEY: = ENTITY = PROCESS = DATA FLOW

= DATA STORE

FIGURE 1. 2

Process Flowcharts

Entity Relationship Diagram

Current System

SYMBOL KEY: = ENTITY = ATTRIBUTES

FIGURE 2. 1

File Structure Table

Entity Relationship Diagram

Proposed System

SYMBOL KEY: = ENTITY = ATTRIBUTES

FIGURE 2. 2

File Structure Table

Explanation of DFD's and E-R diagrams

Figure 1. 1 and Figure 1. 2 both show data flow diagrams of the current and proposed systems.

Figure 1. 1 shows the data flow diagram of the current system, it shows the processes and the data flows.

Figure 1. 1 shows that the data source is the coach and the cricket scores, and it shows the destination is the cricket team captain and his team; this is the same data source and destination for the proposed system DFD aswell.

Figure 1. 1 shows that the cricket scores are received by the coach and are calculated manually, and then analysed and passed on to the team captain so he can change his teams tactics to try and win the game.

Figure 1. 2 also shows that the coach receives the data from the cricket scores, but then inputs this data into the new system, which calculates and analyses the information for him and produces outputs, which he views and then tells his captain if his team are ok and should carry on doing what they are doing now, or they should change their tactics, the captain the relays his orders to his team, so that they succeed in the game.

Figure 2. 1 shows the entity relationship diagram of the current system and figure 2. 2 shows the entity relationship diagram of the proposed system, they are almost the same, there is a one to one relationship with the team and set of batting and set of bowling results. However dude the proposed system able to output a set of results analysis, in the form of graphs etc. There is a third one to one relationship between the team and the set of cricket results analysis.

Objectives of the report

There are many objectives of the report.

* Successfully working system

* No bugs

* User friendly system

* Helps team to win more games

* Helps team to change statistics in the best way

* Fufill the requirements of Inam Arif, the cricket team captain of Ilford Cricket Team.

1) The main aim is to find the best possible solution for the captain and the coach of the team. This meant that I had to make a spreadsheet which will find the predictive outcomes as accurate as possible the more accurate the better. The spreadsheet will also be the better if it is able to do more and more of the calculations needed for the spreadsheet for the user.

2) To fulfil my aim I will use the most features available to me as possible to overcome my problem.

3) The solution I choose must:

(a) Predict the match's outcomes efficiently, thus allowing the coach to gain an understanding of the game, and hence change tactics to benefit his team.

(b) Be easy to use, so that the coach does not waste time trying to work out how to use some parts of the program and so he/she can, quickly learn how

to use it, and gain a better understanding of the match being played and enjoy it more.

(c) Make the cricket team more efficient in their tactics during a match. This should mean that they play better and hopefully win more games.

The three outputs needed from the system in the end to make it successful should be:

* A graph of the run rates per over, showing the run rate each over of the whole match.

* A scoring manhattan type graph showing the runs made each over and overall runs during the match.

* A graph showing the wickets taken during the match at what point in the match the team was losing the wickets.

All the above objectives have to be covered, to make my system a successful one.

Design

Overall System Design

Description of modular structure of system – (not detailed algorithm design)

Identification of suitable algorithms for data transformation – (not detailed algorithm design)

There are 3 worksheets and 3 graphs in total.

The first worksheet has two tables in it. The bowling first and batting first tables.

The second worksheet has two tables in it aswell. The bowling second and batting second tables.

The third worksheet has 3 tables, these are comparisons of Run rate per over, total runs, and total wickets between the two teams.

The three graphs are outputs from the data in all three worksheets, the first graph is a graph showing the run rates per over for both teams, the second one shows the total runs for both teams, and the third one the total wickets for both teams.

The tables in worksheet 1 are made out of formulae where you enter the runs per over and wickets per over, and the computer works out the rest of the data, i. e. the run rate per over, the number of wickets taken and total runs for you.

The tables in worksheet 2 are made up of some data from worksheet 1. The batting second table has a target column and this is made from data in worksheet 1 showing total runs for the batting first team, because the batting second team must reach the total runs made by the batting first team.

The third worksheet is made up of data from both the first and worksheets. The data for comparison of run rates per over, total runs and total wickets, are taken from the first two worksheets. The total runs and run rate per over

figures are taken from the batting first and batting second tables. The total

wickets figures are taken from the bowling first and bowling second tables.

All this data is linked using macros into worksheet 3 and then sheet 3 is used

to output the 3 graphs. The data from the three comparison tables in

worksheet 3 is used to create the three graphs.

Below a illustrated version of how the worksheets and graphs are linked is

shown.

Figure 3. 1

Symbol Key

= Worksheet

= Table = Graph

= Links between the tables

= Links between the tables and the graphs

Definition of data requirements, such as input and output data types and

formats

Data types were numbrs, ouputs r graphs, etc.

Identification of appropriate storage media and format

Print outs, hard disk and floppy

Identification of any validation required

Sample of data validation, illustrating the operation of error messages

Maximum figures, screen shots of the validation, and illegal data.

User interface design including input / output forms and reports

Inputs-runs per over, and wickets per over, and overs happened. Input forms sheet 1 and sheet 2 3 colums each

Sheet 3 all done formulae

And outputs r graph 1 2 3..

Run rates per over

Total runs

Wickets

Good HCI design:

Considers

The User – type of use and context – e. g. business or home –

User needs/Usability

Input/output devices – choice of and appropriateness of

Dialogues – to be relevant, simple and clear

Colour – use of and colour combinations

Icon usage and presentation – 3D effects and depth perception

Provides

Feedback

Exits – clearly marked

On-line help

Shortcuts

Helpful error messages

Prevents errors occurring

Minimises the amount the user has to remember

Sample of planned data capture and entry

Data capture in to the sheets, on the comp straight, and if bak up needed, then scores written on paper in this data form. but input later, then calculated.

Description of record or database structures

Screenshots of the records of each cell, properties etc.

Sample of planned valid output

The three graphs. three outputs.

File organisation and processing forgot

Database design including E-R model

Entity relationship diagram

Description of measures planned for security and integrity of data

Description of measures planned for system security (access control)

Security, passwords etc

Overall test Strategy

Top down, bottom up; Black-box testing. White-box testing.

Identify suitable test strategies and select and document suitable test data.

Unit testing, Integration testing, System testing, Acceptance testing.

Test solution and document the results of testing.

Technical Solution

Write up and discussion of technical solution could refer to other sections

Copies of code listings (preferably in the appendix)

Details of software tailoring (evidence may be in the systems maintenance section)

System Maintenance

Develop and document a solution for maintainability. For maintainability a solution should be evaluated in terms of the ease with which it can be

corrected if an error is encountered, adapted if its environment changes, or enhanced if customer changes requirements.

Use my project to make a documentation on how to maintain this thing.

System Testing

Use wat I made in excel to test in the testing thing.

User Documentation

Talk about how to use the system.