# Use Case 1: First time user registers

* User selects the *Register* button
* The *Registration* page is displayed to the user
* User fills out the following registration details:
  + First Name
  + Last Name
  + Email address
  + Password
  + Confirm password
* User then selects the *Save* button
* The *Generate Report* page is displayed to the user

# Use Case 2: User generates PDF report for Mayoral Election 2006 (filtered on Contributor Name)

* From the *Generate Report* page the user selects *Mayoral Election* from the *Select an Election* drop-down field
* The user then selects *Contributor Name* from the *Filter by* drop-down field
* The user then selects *PDF* from the *Export As* drop-down field
* The user then selects the *Generate Report* button
* The user is re-directed to a new page which displays the generated PDF

# Use Case 3: User generates Word report for Council Election 2010 (filtered on Candidate Name)

* From the *Generate Report* page the user selects *Council Election* from the *Select an Election* drop-down field
* The user then selects *Candidate Name* from the *Filter by* drop-down field
* The user then selects *Word Document* from the *Export As* drop-down field
* The user then selects the *Generate Report* button
* The user is re-directed to a new page which displays the generated Word document

# Use Case 4: User generates Excel report for Mayoral Election 2006 (filtered on Donation Amount)

* From the *Generate Report* page the user selects *Mayoral Election 2006* from the *Select an Election* drop-down field
* The user then selects *Contribution Type* from the *Filter by* drop-down field
* The user then selects *Excel* from the *Export As* drop-down field
* The user then selects the *Generate Report* button
* The user is re-directed to a new page which displays the generated Excel document

# Use Case 5: User generates CSV file for Council Election 2006 (filtered on Ward No.)

* From *Generate Report* page the user selects *Council Election 2006* from the *Select an Election* drop-down field
* The user then selects *Ward No.* from the *Filter by* drop-down field
* The user then selects *CSV* from the *Export As* drop-down field
* The user then selects the *Generate Report* button
* The is re-directed to a new page which displays the generated CSV file

# Use Case 6: Analyse data for Contributions Versus Votes to determine the approximate contribution amount required for a give number of votes or vice versa

* Using a Least Squares Regression method, the total number of votes and contributions per candidate will be analysed to determine how much contributions it takes to achieve a given number of votes
* The initial model will be based on a linear “best fit” line
* The difference between 2006 and 2010 will be analysed allowing the user to query for instance how many votes is $60,000 worth of contributions likely to achieve or how much contributions are approximately required to achieve 10,000 votes.

Our formula or calculation in the Businiess Logic Layer will be based on the following, (from

<http://people.hofstra.edu/stefan_waner/calctopic1/regression.html>):

The best fit line associated with the n points (x1, y1), (x2, y2), . . . , (xn, yn) has the form

y = mx + b

where

|  |  |  |  |
| --- | --- | --- | --- |
| slope = m | = | |  | | --- | | n(http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFxy)  (http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFx)(http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFy) http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/FR.GIF n(http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFx2)  (http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFx)2 | |

|  |  |  |  |
| --- | --- | --- | --- |
| intercept = b | = | |  | | --- | | http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFy  m(http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFx) http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/FR.GIF n | |

Here, http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFmeans "the sum of." Thus

http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFxy = sum of products = x1y1 + x2y2 + . . . + xnyn   
http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFx = sum of x-values = x1 + x2 + . . . + xn   
http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFy = sum of y-values = y1 + y2 + . . . + yn   
http://people.hofstra.edu/stefan_waner/calctopic1/SYMB/SIG.GIFx2 = sum of squares of x-values = x12 + x22+ . . . + xn2