

# ESAS Project report

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# Introduction

In this project we have implemented a **web based voting system** to model the Australian Senate, which allow voters to either vote for **entire parties** or for **individual candidates**.

The system also allow an **authenticated commissioner** to **create or modify candidates** by entering their details, such as their name and party. After the sufficient voting has been done, the **system will correctly calculate the order in which senators should be elected**, and the **result will be available to commissioner**.

# Development Process

We started by gathering requirements from the assignment description (Base Task).

For each sprint:

- User stories were made
- Tests were developed
- Use cases were developed

# Measure priority of the user stories

In order to allocate user stories that we need to implement for each **iteration**, we have decided to list them out from the most basic feature to the most complicate feature. So they are in sequence of:

Index\_page -> Voter\_form -> Commisioner\_index\_page -> Candidate\_form ->  
Candidate\_detail\_pages -> Winning\_candidate -> Voting\_page

# Measure difficulty and velocity of user story

We assigned efforts level for each of the sprint depending on the amount of time we took to implement the use cases assigned in that sprint. The following are components that were assigned in that particular sprint for a user story(week) and the efforts levels are mentioned next to them:-

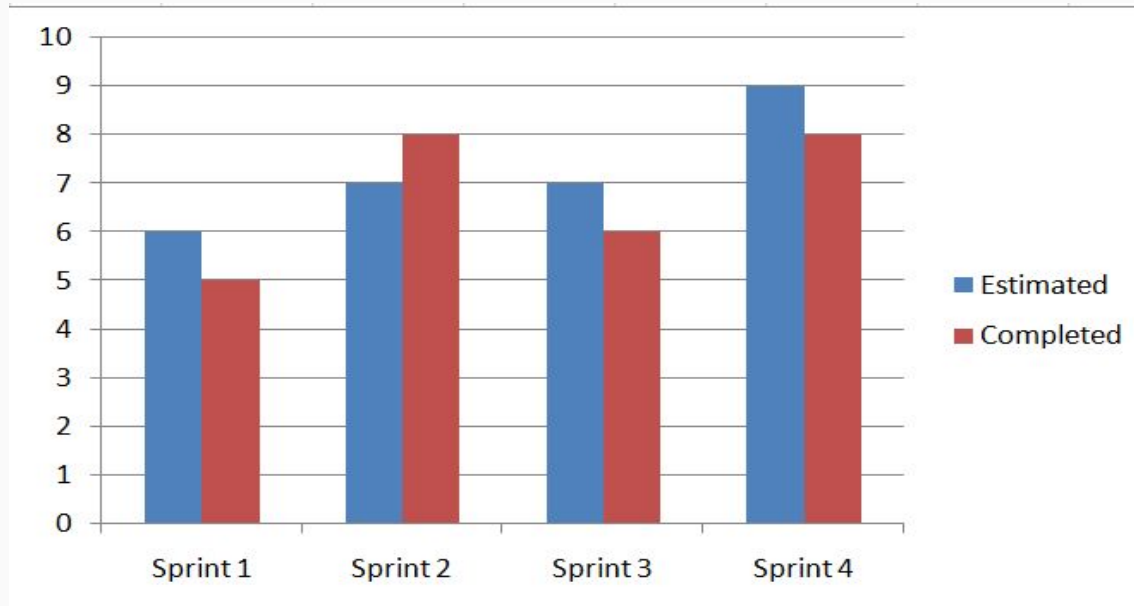
W1 index and voter\_form 6 (Sprint 1)

W2 commisioner\_index + candidate\_form 7 (Sprint 2 )

W3 candidate edit show list 7 (Sprint 3)

W4 winning + voting 9 (Sprint 4)

# Measure difficulty and velocity of user story



# Address problem during development

During development of the project, we have used the agile methodology, which we organise a short online scrum meeting every week to check what we have done in this week, what still needs to be done and catch up all the work that we have left behind.

# TDD

What is TDD?

Test-Driven Development is a software development method in which test cases are developed and tested against the software to:

- Validate and specify what the code will do
- Ensure the code is bug-free



# Rspec

**Rspec** is a TDD automated test case, which includes:

- **spec(short for specifications)**
  - short test cases which describe behavior of:
    - class,
    - module, and
    - the specified methods

Assisting in better code implementation.

# Our Tests

We have been able to rspec through the form of our `create_voter page` that ensures that `citizen number's valid` and that `none of the fields can take "" (null) as their inputs`.

This makes sure the `code implementation is correct` and ensures that the `behavior of the class is as specified`.

A few snippets of the code are as follows:

# Spec Snippets

```
voter.rb x
1 class Voter < ApplicationRecord
2   validates_presence_of :Name
3   validates_presence_of :Gender
4   validates_presence_of :Title
5   validates_presence_of :PhoneNumber
6   validates_presence_of :CitizenNumber
7   validates_presence_of :Address
8   validates_presence_of :date_of_birth
9 end
10 |
```

```
2
3 RSpec.describe Voter, type: :model do
4   it 'no citizen number present, so the user cannot be authenticated' do
5     m=Voter.new
6     expect(m).to respond_to(:CitizenNumber)
7   end
8   it 'The address should not be blank' do
9     m=Voter.new
10    m.Address=""
11    expect(m.valid?).to eq(false)
12  end
13  it 'The name should not be blank' do
14    m=Voter.new
15    m.Name=""
16    expect(m.valid?).to eq(false)
17  end
18  it 'The gender should not be blank' do
19    m=Voter.new
20    m.Gender=""
21    expect(m.valid?).to eq(false)
22  end
23  it 'The Phone Number should not be blank' do
24    m=Voter.new
25    m.PhoneNumber=""
26  end
27 end
```

Voter › no citizen number present, so the user cannot be authenticated

Finished in 0.04372 seconds (files took 4.11 seconds to load)  
6 examples, 0 failures

Coverage report generated for RSpec to /Users/cofeey/Desktop/RubymineProjects/group/coverage. 103 / 105 LOC (98.1%) covered.

# Cucumber - BDD

Use of cucumber as user stories allowed us to fully understand the needs of the system, and efficiently describe and test for everything that needs to be implemented.

# Cucumber Feature Files

```
Feature: Edit Candidates
  As the commissioner of VoteAus,
  So that I may manually edit information
  I want to be able to change the candidates details, including name, party and state

Scenario: Add new Candidate
  Given I am logged in as commissioner
  And I click "Add Candidate"
  Then I should be directed to the add candidate page
  And I should be able to enter details for candidate

Scenario: View existing Candidates
  Given I am logged in as commissioner
  When I click "View Candidates" button
  Then I should be redirected to the view candidate page

Scenario: Delete Candidate
  Given I am on the view candidate page
  When I click "Delete" button
  Then The candidate should be removed

Scenario: Edit Candidate
  Given I am on the View Candidate page
  When I click "Edit" button
  Then I should be redirected to edit candidate page
  And I fill in new details
  When I click "update"
  Then the candidate details will update
  And I will be redirected to view candidate page
```

```
Feature: Go to homepage
  As a user of VOTE AUS,
  So that I need to access the home page of VOTE AUS for voting or login as commissioner,
  I want to access the home page of VOTE AUS.

Scenario: Access the home page of VOTE AUS
  Given I am on the home page of VOTE AUS
  Then I should see button "Vote" and "Login as Commissioner"
```

```
Feature: Go to vote
  As a user of VOTE AUS,
  So that I need to vote for my favorite candidate,
  I want to access the vote page of VOTE AUS and vote.

Scenario: Access the home page of VOTE AUS and click "Vote" button
  Given I am on the home page of VOTE AUS
  When I click the button "Vote"
  Then I should be directed to voter info page
  And I fill the voter info and click the "Create Voter"
  Then I should see the vote page
```

# Introduce our system

VOTE AUS

Make your vote heard!

Vote

Login as Commissioner

**JUST  
VOTE**

Welcome to commissioner page

View candidates

Add new candidate

Show winning candidates

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# Candidates

[+ New candidate](#)

Name	Surname	State	PartyAb	PartyName	CandidateNumber	Action
Ram	Lovelock	SA	Liberal	Liberal Party of Australia	4123	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Destroy</a>
Filmore	Portugal	QLD	National	National Party of Australia	1234	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Destroy</a>
Merci	Cutford	WA	Greens	Australian Greens	3214	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Destroy</a>
Kerry	Santore	SA	CA	Centre Alliance	6547	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Destroy</a>
Johnette	MacNeilage	TAS	Labor	Labour Party of Australia	7847	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Destroy</a>
Lola	Lowrance	VIC	KAP	Katter's Australian Party	7101	<a href="#">Show</a> <a href="#">Edit</a> <a href="#">Destroy</a>

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# New Voter

Name

Gender

Male

▼

Title

Mr

▼

Phonenumber

Citizennumber

Address

Date of birth

2021

▼

June

▼

7

▼

Create Voter

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**You may vote in one of two ways Either:**

**Above the line:**

By numbering at most 6 of these boxes in the order of your choice (with number 1 as your first choice)

PartyName	Number
Liberal Party of Australia	<input type="text"/>
National Party of Australia	<input type="text"/>
Australian Greens	<input type="text"/>
Centre Alliance	<input type="text"/>
Labour Party of Australia	<input type="text"/>
Katter's Australian Party	<input type="text"/>

Save

**Or:**

**Below the line:**

By numbering at most 12 of these boxes in the order of your choice (with number 1 as your first choice)

Name	Surname	State	PartyAb	PartyName	CandidateID	Number
Ram	Lovelock	SA	Liberal	Liberal Party of Australia	13	<input type="text"/>
Filmore	Portugal	QLD	National	National Party of Australia	14	<input type="text"/>
Merci	Cutford	WA	Greens	Australian Greens	15	<input type="text"/>
Kerry	Santore	SA	CA	Centre Alliance	16	<input type="text"/>
Johnette	MacNeillage	TAS	Labor	Labour Party of Australia	17	<input type="text"/>
Lola	Lowrance	VIC	KAP	Katter's Australian Party	18	<input type="text"/>

Save

1st

**Ram Lovelock , SA**  
**Liberal Party of Australia**

**41.18%**

2nd

**Lola Lowrance , VIC**  
**Katter's Australian Party**

**31.37%**

3rd

**Johnette MacNeilage , TAS**  
**Labour Party of Australia**

**27.45%**

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# Conclusion

As a conclusion, we have implemented a web based system that model the voting mechanism for the Australian Senate. Which allow voter to vote their favorite parties or individuals, and allow commissioner to manage the candidates list and final result.

During the development of this project, we also used many techniques to facilitate its progress. For example, we **have assigned each user story a priority** and **allocate each task in different iteration** based on their **difficulty** and **current velocity of the implementation**. Also, we have used technique such as **cucumber and Rspec** to verify our system from individual core unit to entire system, which allow us to improve the outcome of our project.