BMS INSTITUTE OF TECHNOLOGY &MANAGEMENT

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Internship Presentation

Under the Guidance of:

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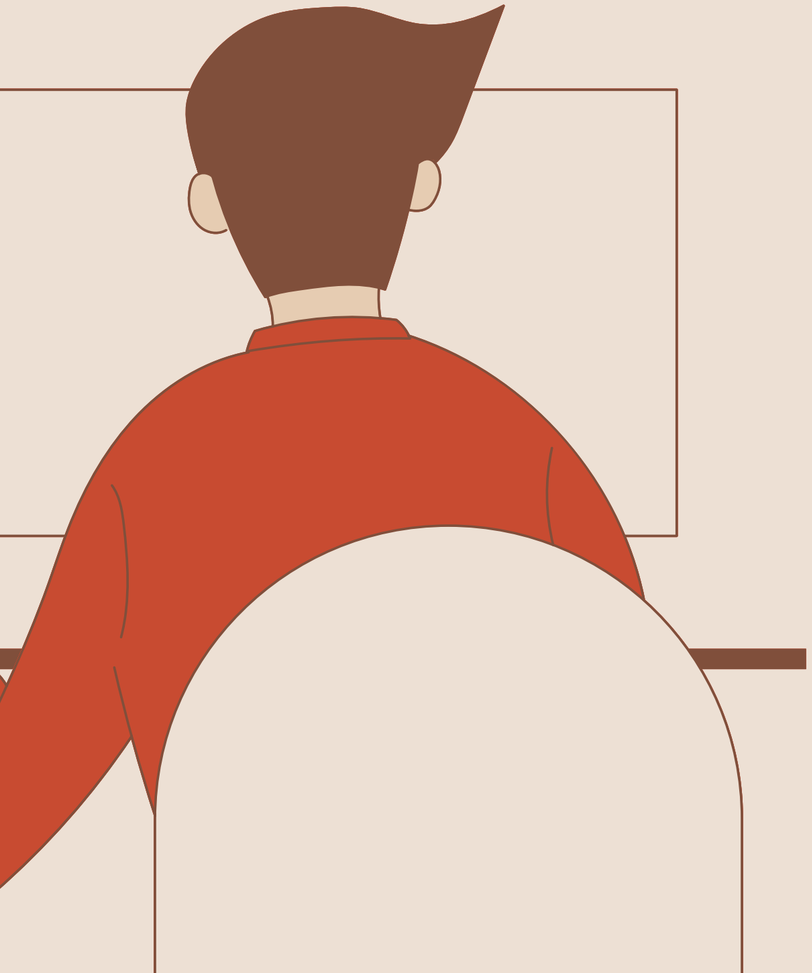
I ABSTRACT



- Bharat Electronics Limited is an Indian state-owned aerospace and defence company with about nine factories and several regional offices in India. It is owned by the Indian Government and primarily manufactures advanced electronic products for the Indian Armed Forces.

- As a part of my internship, I worked on the static code analysis tool for Python in the software group.

- The internship enriched my knowledge about defence, static code analysers and professional methods of coding.

- Teamwork, communication skills and time management were the other key takeaways from the internship.

II ABOUT ORGANISATION

- Bharat Electronics Limited (BEL) was set up in Bangalore in 1954 by the Government of India under the Ministry of Defence (MoD).
- It is now a Navratna PSU and India's foremost Defence electronics company.
- BEL is a multi-product, multi-technology, multi-Unit conglomerate boasting over 350 products.
- Research & Development has been one of BEL's core strengths, helping it maintain its pre-eminence in Defence electronics.

III TASK ASSIGNED

- Analyze Python source code or compiled code so that you could easily detect vulnerabilities without executing a program.
- Automate code quality maintenance.
- Automate the search for bugs at the early stages.
- Develop a basic web page to display the results.

IV CHALLENGES AND HOW I OVERCOME THEM

Challenges

- Deadlines
- Time management
- Working with Technologies I have not worked before

Solutions

- Better Team Management to enable efficient working to meet deadlines
- Dividing the work and also setting up a calendar for better management of time.
- Spending a good amount of time on learning

Mrs Venkatalaxmi G
Manager (Quality Assurance)

Responsible for product quality assurance.
Ensuring proper testing and evaluation of the product are done before delivery.

- Leading a team of 10 employees to ensure quality through testing and proper evaluation of various products like GPRS(Guided Pinaca Rocket System), Naval Defence systems, etc.
- Communications with the product development team if any changes are required to be made in the code.

VI TECHNOLOGIES USED

- Pylint (static code analyser)
- HTML
- CSS
- JavaScript
- Python

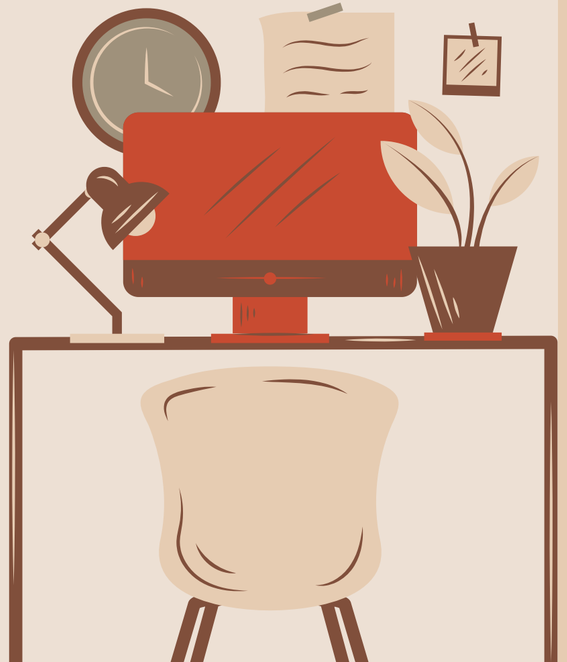
VII WORKING PRINCIPLE

How to run Pylint?

- Pylint is meant to be called from the command line.
  pylint [options] modules_or_packages
- We can also use pylint as:
  pylint directory/mymodule.py
- We can also achieve parallel execution by using the following command:
  pylint -j 3 mymodule1.py mymodule2.py mymodule3.py
- To run the pylint for the entire package use command:
  find. -type f -name "*.py" | xargs pylint.
- pylint directory/mymodule.py
  can also be used if the directory is a python package (i.e. has an __init__.py file or it is an implicit namespace package) or if the “directory” is in the python path.

Static Code Analyser : Pylint

- Write the Code
- Run a Static Code Analyzer
- Review the Results
- Fix What Needs to Be Fixed
- Move On to Testing



VIII OUTPUT

```
$ pylint app.py
C:122, 4: Missing method docstring (missing-docstring)
R:136, 0: Too many instance attributes (9/7) (too-many-instance-attributes)
R:217, 4: Too many local variables (23/15) (too-many-locals)
C:345,16: Variable name "mo" doesn't conform to snake_case naming style (invalid-name)
R:304, 8: Too many nested blocks (6/5) (too-many-nested-blocks)
C:377,24: Variable name "mo" doesn't conform to snake_case naming style (invalid-name)
W:403,34: Access to a protected member _payload of a client class (protected-access)
R:304, 8: Too many nested blocks (6/5) (too-many-nested-blocks)
C:405,28: Variable name "mo" doesn't conform to snake_case naming style (invalid-name)
W:408,32: Access to a protected member _payload of a client class (protected-access)
R:304, 8: Too many nested blocks (6/5) (too-many-nested-blocks)
W:268,16: Unused variable 'msg' (unused-variable)
R:217, 4: Too many return statements (7/6) (too-many-return-statements)
R:217, 4: Too many branches (58/12) (too-many-branches)
R:217, 4: Too many statements (160/50) (too-many-statements)
```

IX LEARNING OUTCOMES

Technical Outcomes

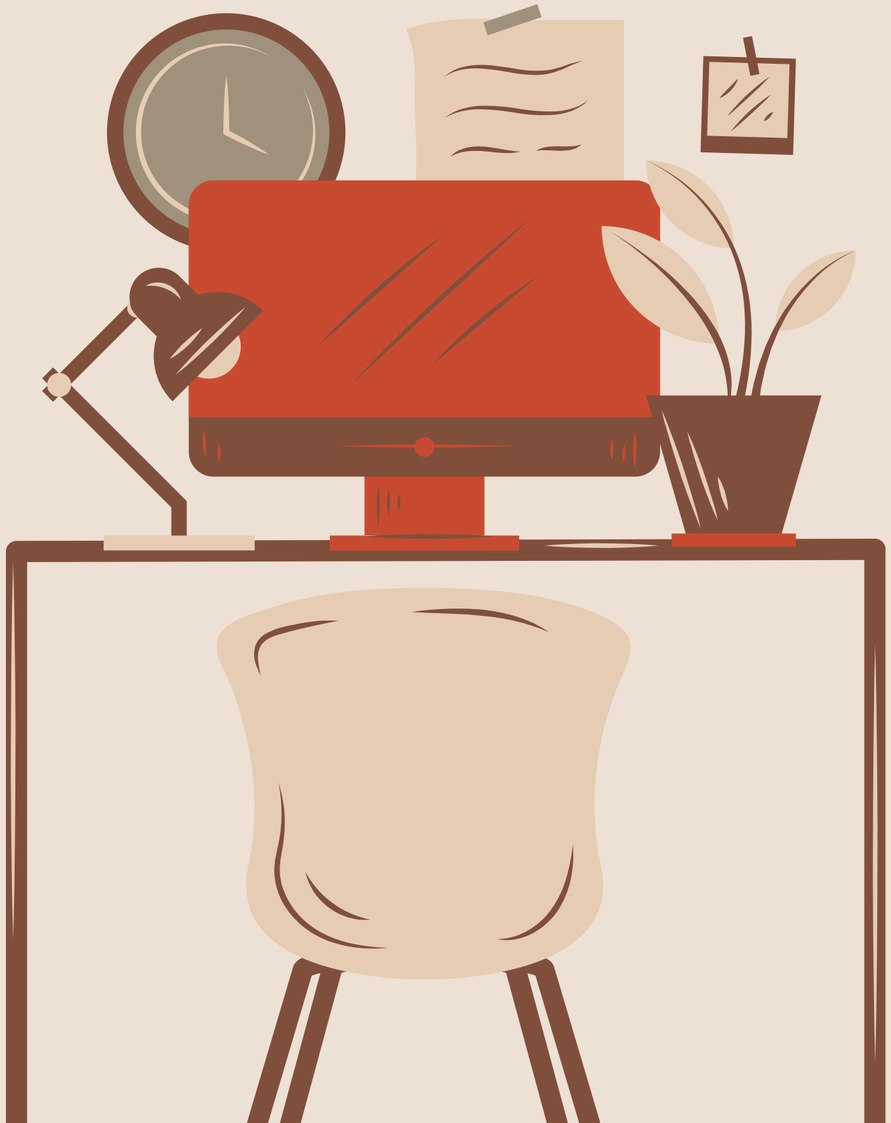
- Static code analysis
- Practical implementation of HTML, CSS and JS
- Testing using Reporter Radar Training Simulator (RRTS)

Non Technical Outcomes

- Communication Skills
- Time management
- Leadership Skills
- Teamwork Skills
- Decision Making

RRTS

X CONCLUSION



- Throughout the duration of the internship, I have learned daily and developed both technical and interpersonal skills.

- The most important thing I learned is that "Sticking to the basics" is the key to the professional world and not trying too many fancy things which may complicate a simple task.

- Professionalism and Code of Conduct is the other thing that I learned throughout the course of the internship which includes (a way of talking to colleagues, sitting in an professional enviroinment, professional way of coding,etc.)

XI REFERENCES

[1] https://www.bel-india.in/Default.aspx

[2] https://luminousmen.com/post/python-static-analysis-tools

[3] https://www.w3schools.com/

[4] https://www.perforce.com/blog/sca/what-static-analysis#:~:text=Static%20code%20analysis%20is%20a,along%20with%20source%20code%20analysis.

[4] BEL Internal Resources

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Thank you for listening!