NBO BUG'S ANALYSIS

Components

NBO components used for analysis:

- Payroll
- Sales
- Employees
- Scheduling
- Manager Tools
- Purchasing
- Inventory and Prep
- Recipes
- Staffing
- Period End
- Reports

Perception vs reality

Perception

1.Summary ,Description are the important Jira fields available to understand about a bug.
2.When the description and summary says something strongly about a particular component then we say that the bug is related to that particular component.
3.Lets take this theory as a base of our analysis

Reality

1.Lets check the reality by taking an example:

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Ex:"SQL Exception when editing employees at
two sites " .
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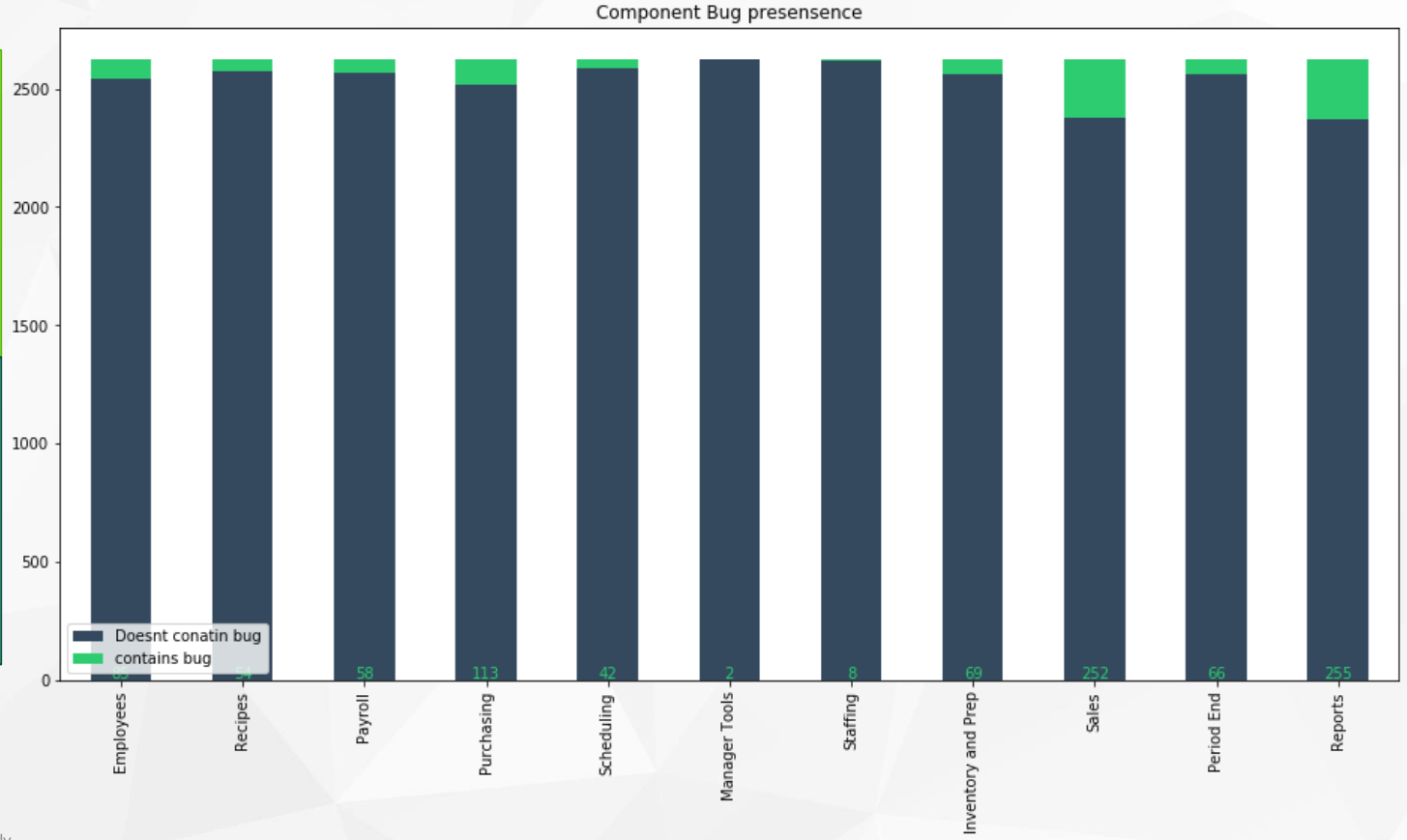
2.The example says about a bug which is reproduced when we edit employees information at two sites.
3.The above information speaks strongly about an issue happening in employees so we can say that the bug belongs to employee component

Bugs distributed over components

Reports and sales have highest number of bugs and Employees ,Purchasing concepts has second highest number of bugs.

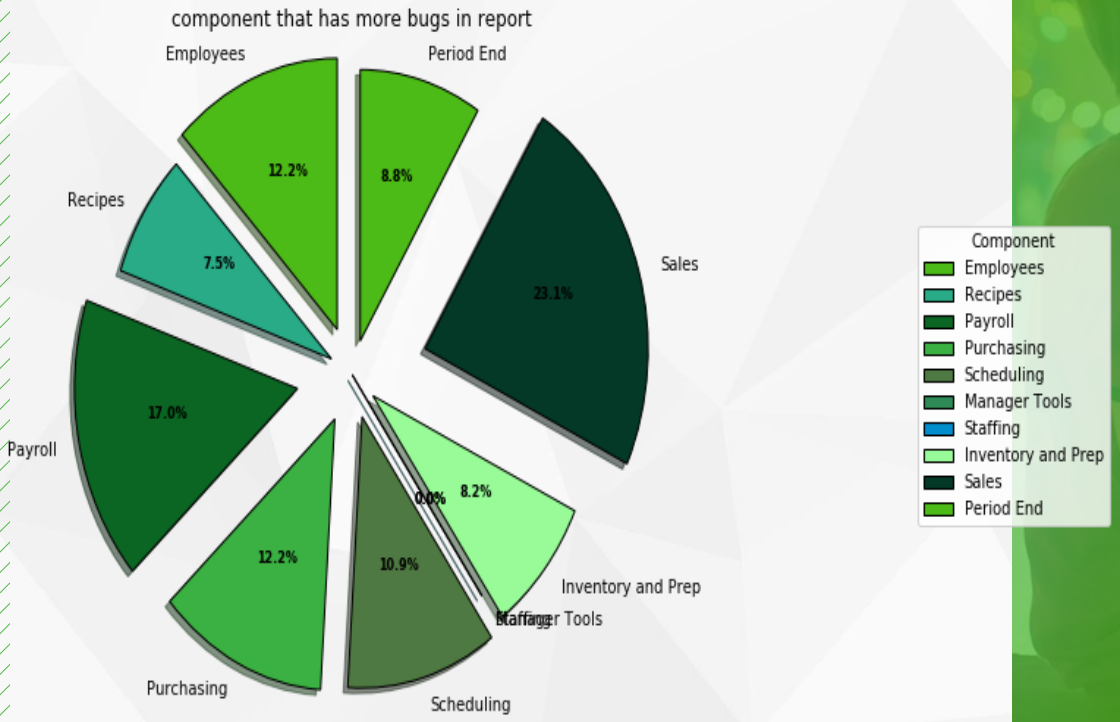
Manager tools, staffing have least number of bugs where as scheduling and recipes stands next in least number of bugs reported.



Report Bugs

- Reports document the information in application.
- Hence an issue that caused mishap in the component's data could lead to a bug in report.
- Can this be ,the reason of more bugs in reports? lets see the bug rate in report with respect to components.

Components vs Report bugs

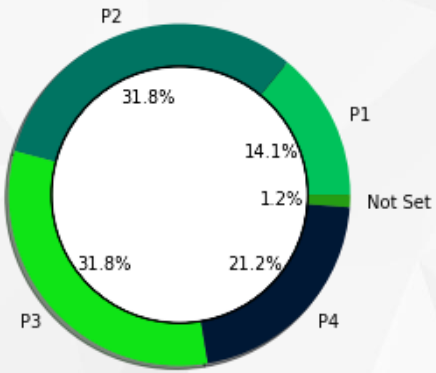


Reports display the data that is associated within **component.** Hence lets see which component caused more bugs in reports

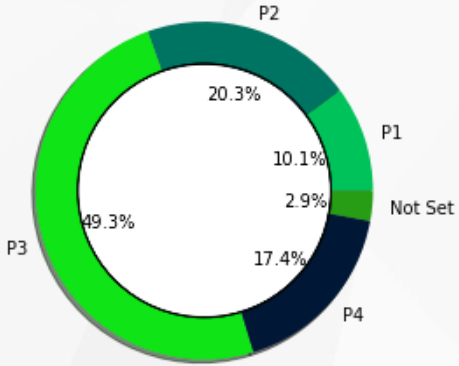
Of all the components ,Sales caused more bugs in reports.

Of all the components , staffing, manager tools components are responsible for less bugs that are logged under report component

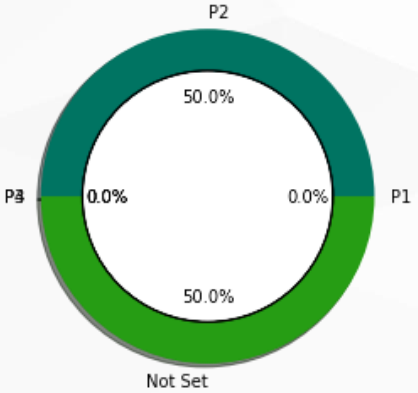
Component vs Priority



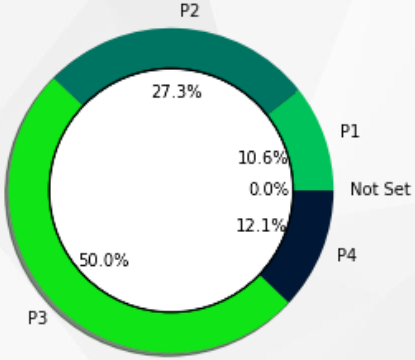
- Employees



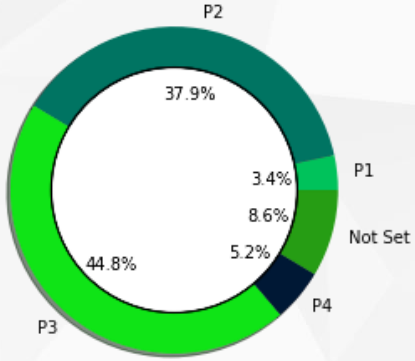
- Inventory & prep



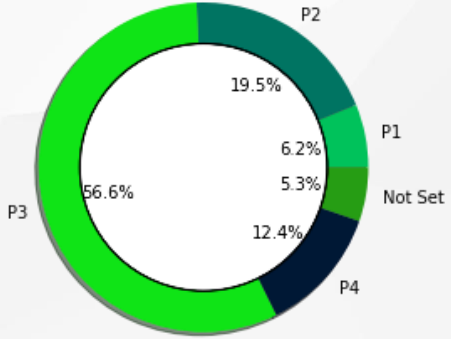
- Manager & Tools



- Period End

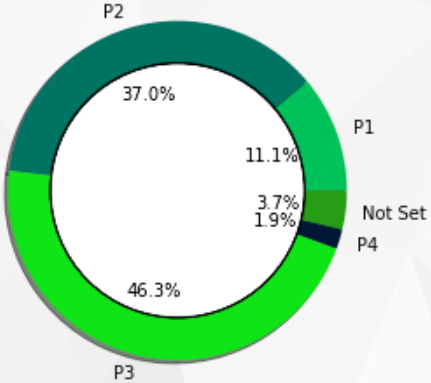


- Payroll

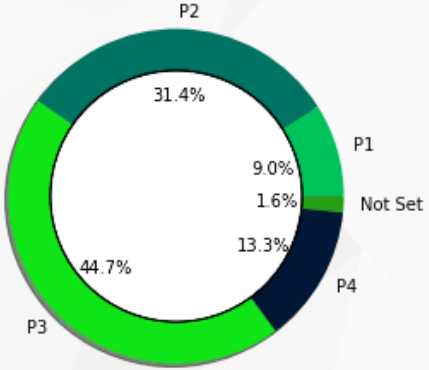


- Purchasing

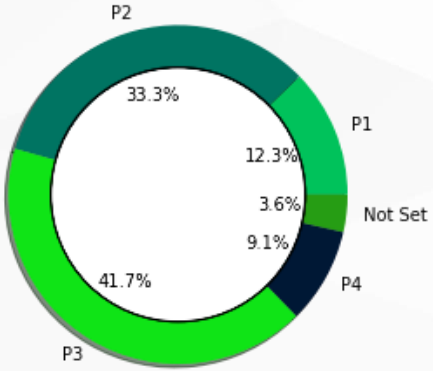
Component vs Priority



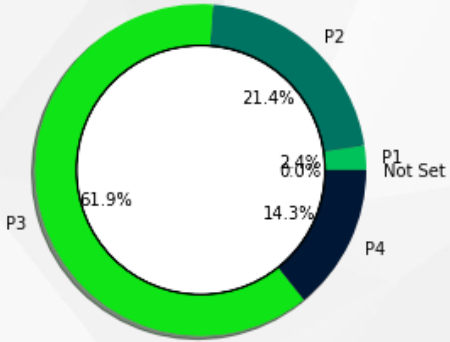
- Recipes



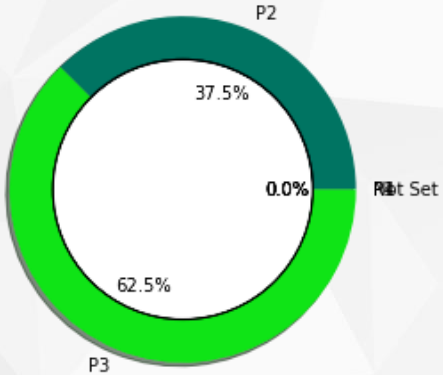
- Reports



- Sales



- Scheduling

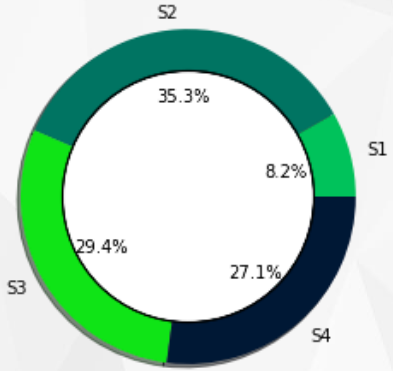


- Staffing

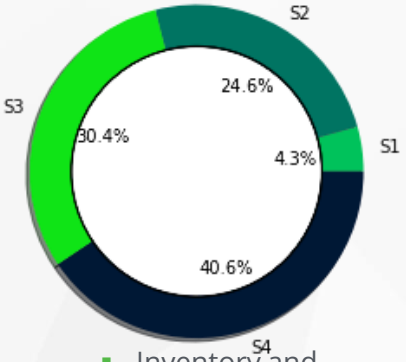
Component vs Priority

Critical Priority(P1)	High Priority(P2)	Medium priority(P3)	Medium priority(P4)
▪ Employees has 14.1% of bugs having P1 priority. ▪ Employees component has highest percentage of P1 defects	▪ Manager Tools has 50% of bugs having priority as P2. ▪ Manager Tools component has highest percentage of P2 defects	▪ Staffing has 62.5 % of bugs having priority as P3 ▪ Staffing component has highest percentage of P3 defects	▪ Employees has 21.2% of bugs having priority as P4 ▪ Employees has highest number of p4 bugs among all other components

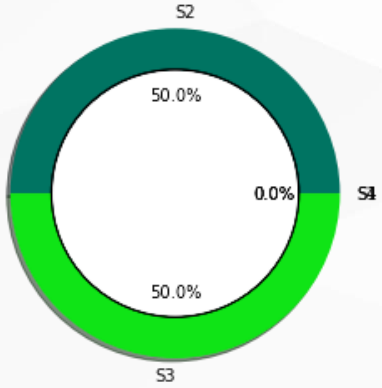
Component vs severity



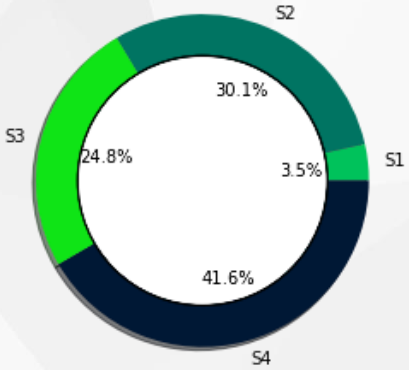
- Employees



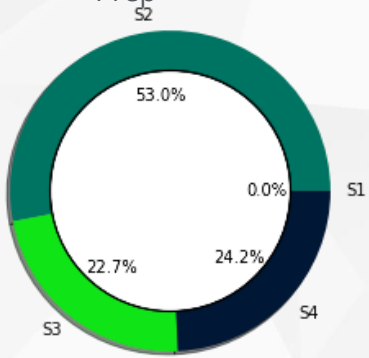
- Inventory and Prep



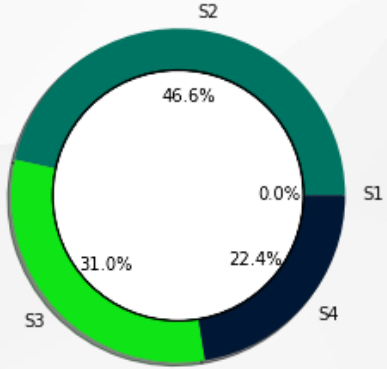
- Manager Tools



- Payroll

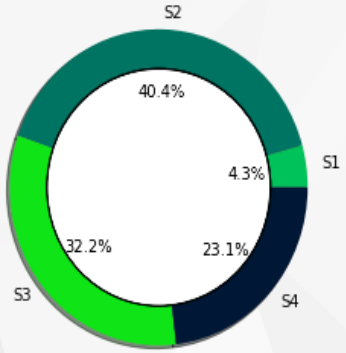


- Period End

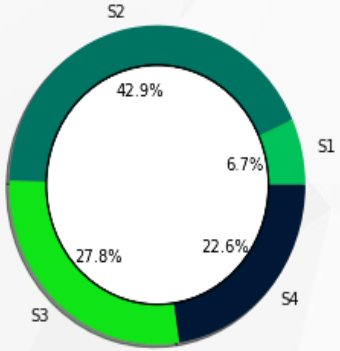


- Purchasing

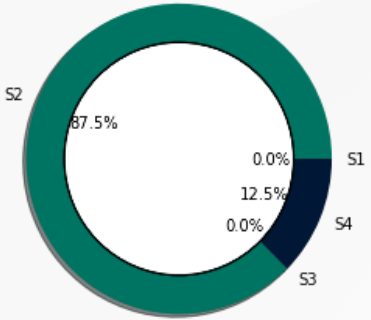
Component vs severity



- Reports

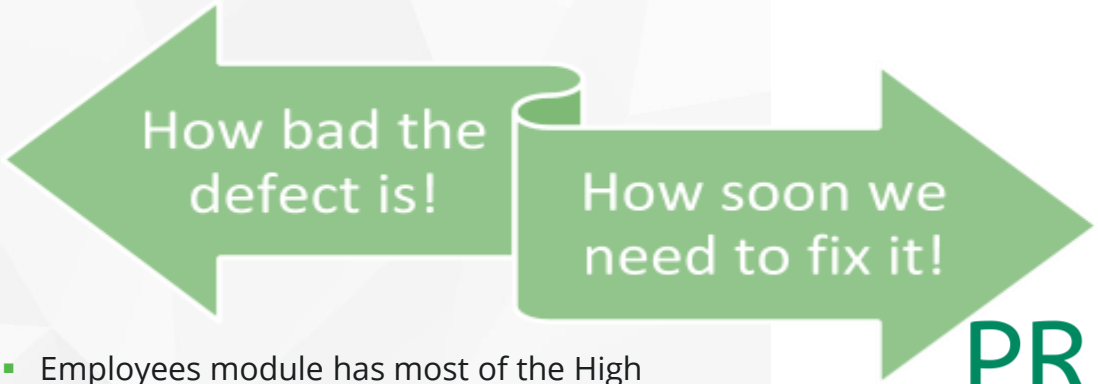


- Sales



- Staffing

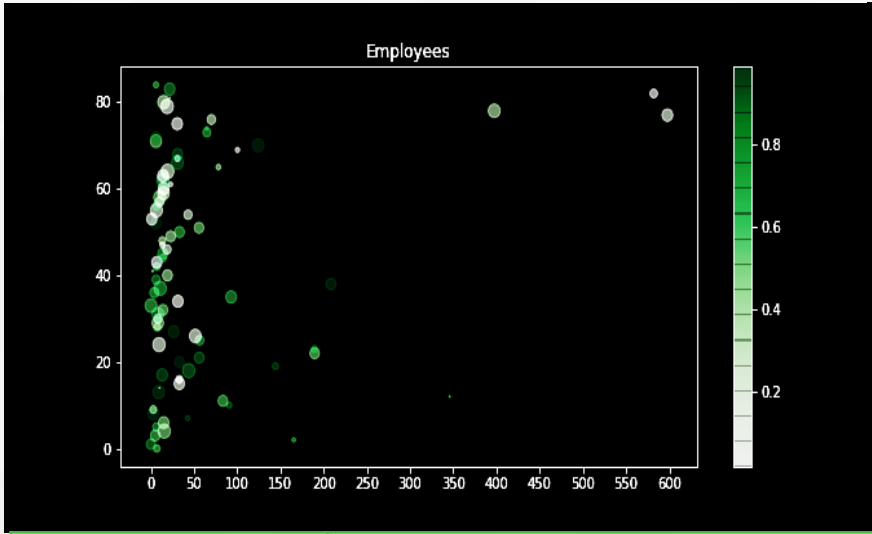
▪ Critical Severity(S1)	▪ Employees has 8.2% of bugs having S1 Severity.
▪ Major Severity(S2)	▪ Staffing has 87.5% of bugs having S2 Severity.
▪ Mid Severity(S3)	▪ Manager tools has 50% of bugs having S3 Severity.
▪ Low Severity(S4)	▪ Purchasing has 41.6% of bugs having S4 Severity.

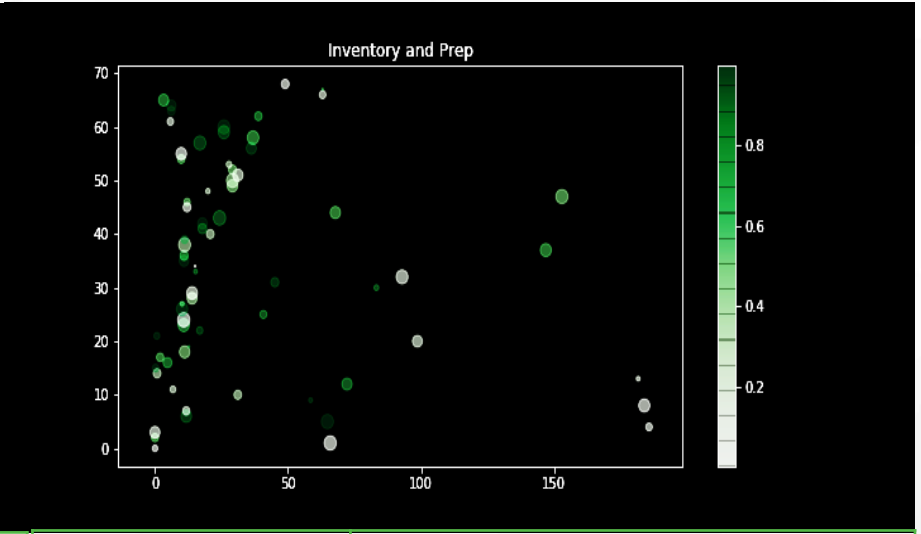


PRIORITY VS SEVERITY

- Employees module has most of the High priority and high severity bugs.
- Staffing has 87.5% of S2 severity and 62.5% of P3 priority. So Staffing component priority is less then its severity.
- Manager tools component has less number of samples from data we selected ,so it shows only two bugs hence 50 percent priority and severity. Better to ignore manger tools component.

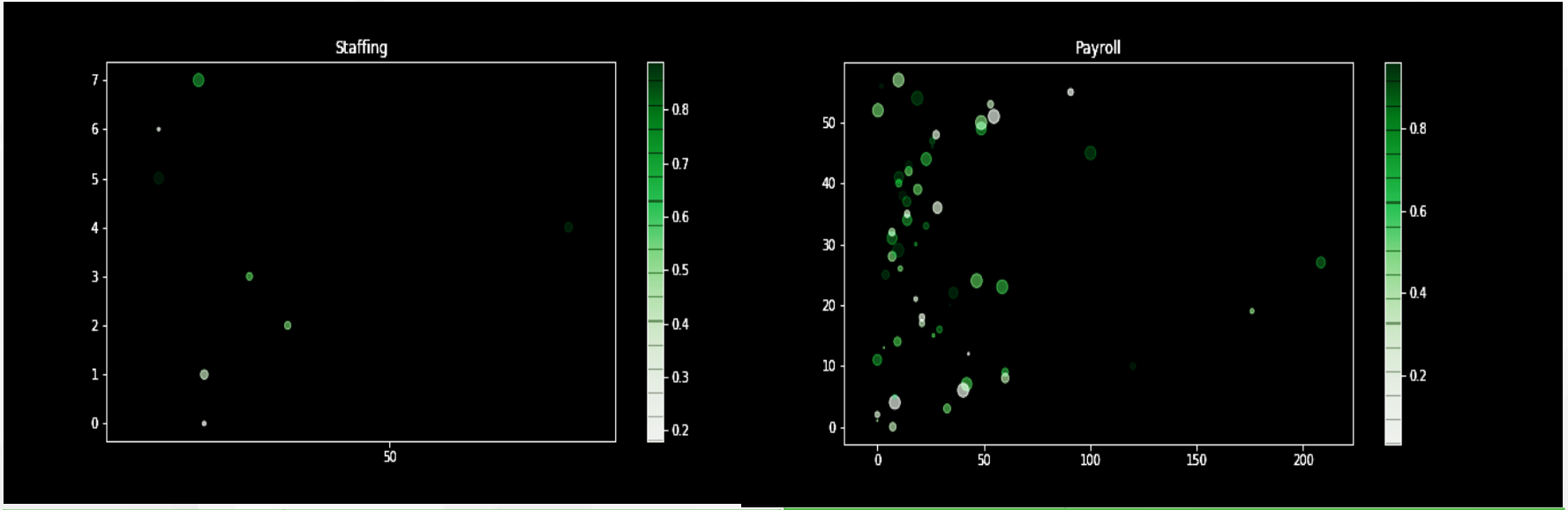
Time taken from creation to resolution of bug.





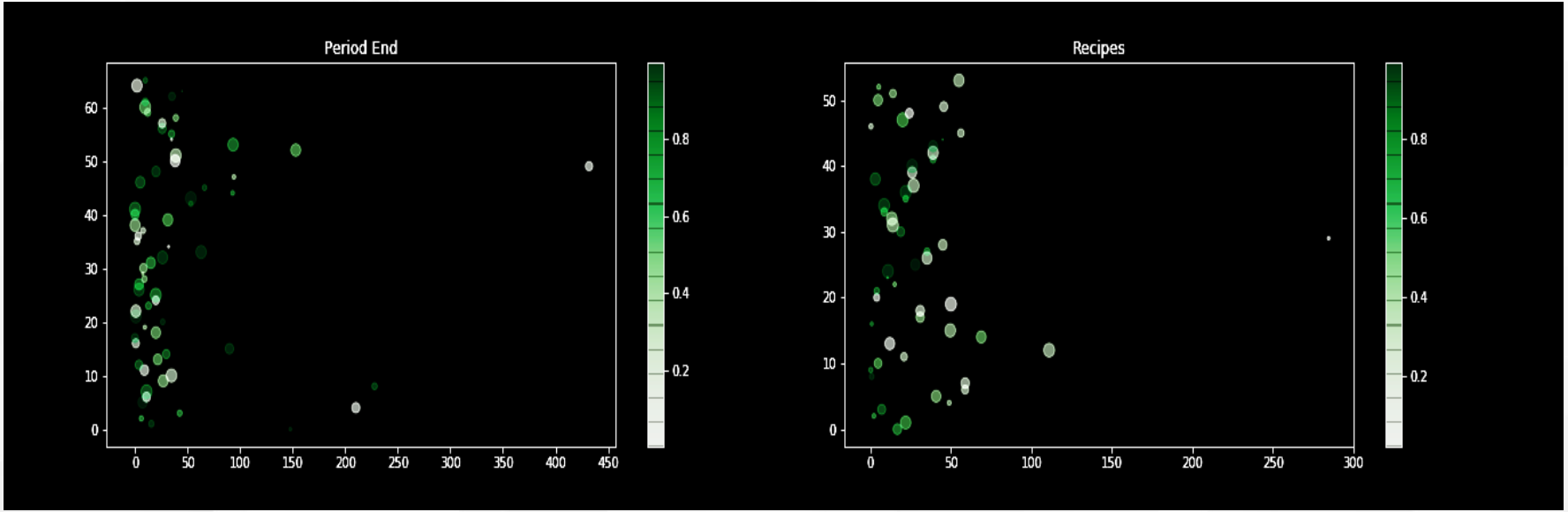
Employees	Maximum time taken to complete bug in Employee Component is 597 days
	Minimum time taken to complete a bug is less then one day
	Average time taken for bug fix is 56 days
Inventory and Prep	Maximum time taken to complete bug in Inventory and prep Component is 185 days
	Minimum time taken to complete a bug is less then one day
	Average time taken for completion of bug is 35 days

Time taken from creation to resolution of bug.



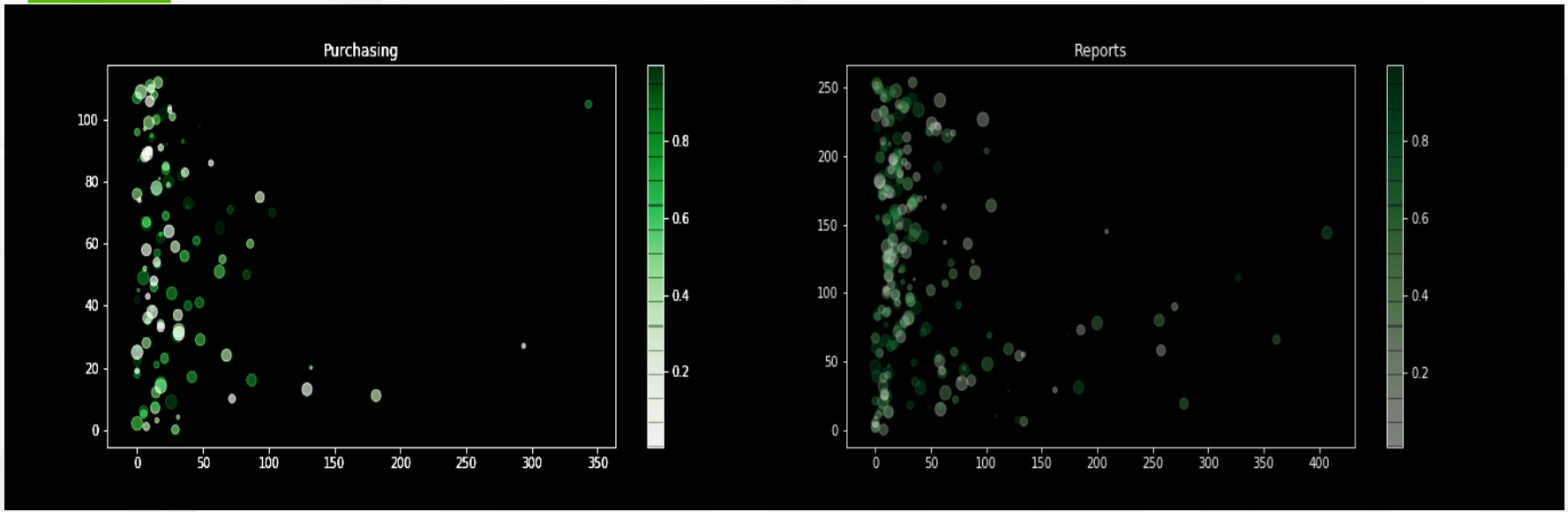
Manager Tools	Maximum time taken to complete bug in Manager tools Component is 77days	**Payroll**	Maximum time taken to complete bug in payroll Component is 208 days
	Minimum time taken to complete a bug is 13 days		Minimum time taken to complete a bug is less then one day
	Average time taken for bug fix is 28 days.		Average time taken for completion of bug is 32 days

Time taken from creation to resolution of bug.



Period End	Maximum time taken to complete bug in Manager tools Component is 431 days
	Minimum time taken to complete a bug is less then a day
	Average time taken for bug fix is 40 days
Recipes	Maximum time taken to complete bug in payroll Component is 284 days
	Minimum time taken to complete a bug is less then one day
	Average time taken for completion of bug is 31 days

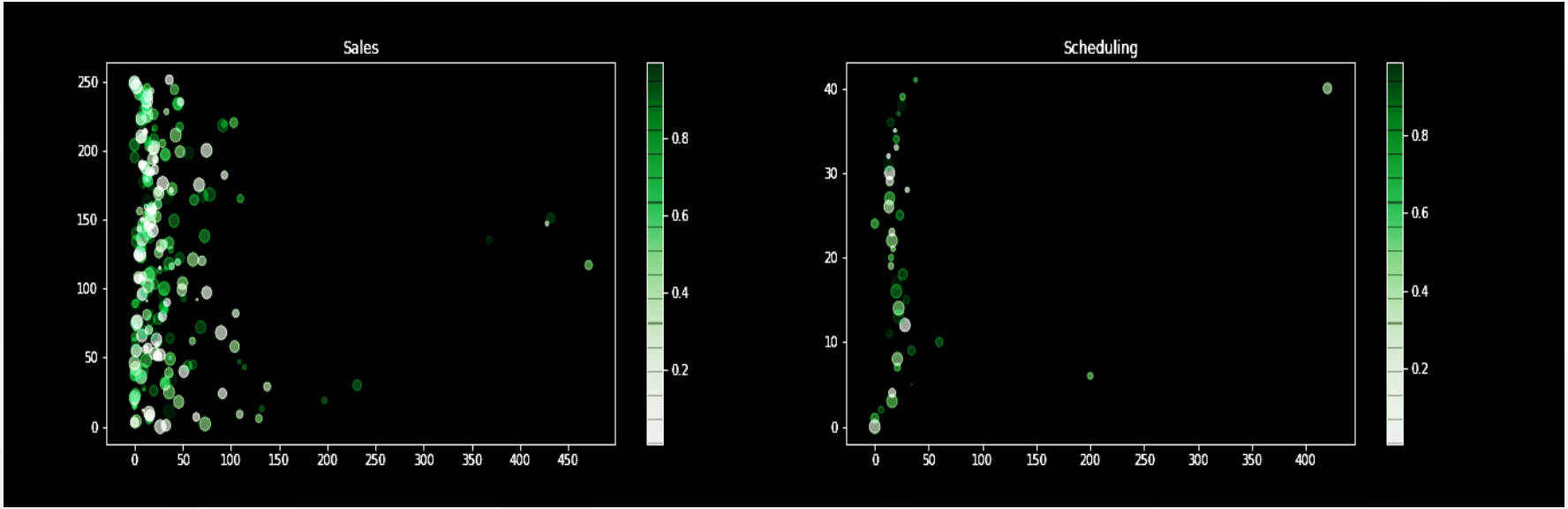
Time taken from creation to resolution of bug.



Purchasing	Maximum time taken to complete bug in Manager tools Component is 343 days
	Minimum time taken to complete a bug is less then a day
	Average time taken for bug fix is 31 days

Reports	Maximum time taken to complete bug in payroll Component is 407 days
	Minimum time taken to complete a bug is less then one day
	Average time taken for completion of bug is 40 days

Time taken from creation to resolution of bug



Sales	Maximum time taken to complete bug in Manager tools Component is 471 days
	Minimum time taken to complete a bug is less then a day
	Average time taken for bug fix is 34 days
Scheduling	Maximum time taken to complete bug in payroll Component is 420 days
	Minimum time taken to complete a bug is less then one day
	Average time taken for completion of bug is 33 days

Time taken from creation to resolution of bug

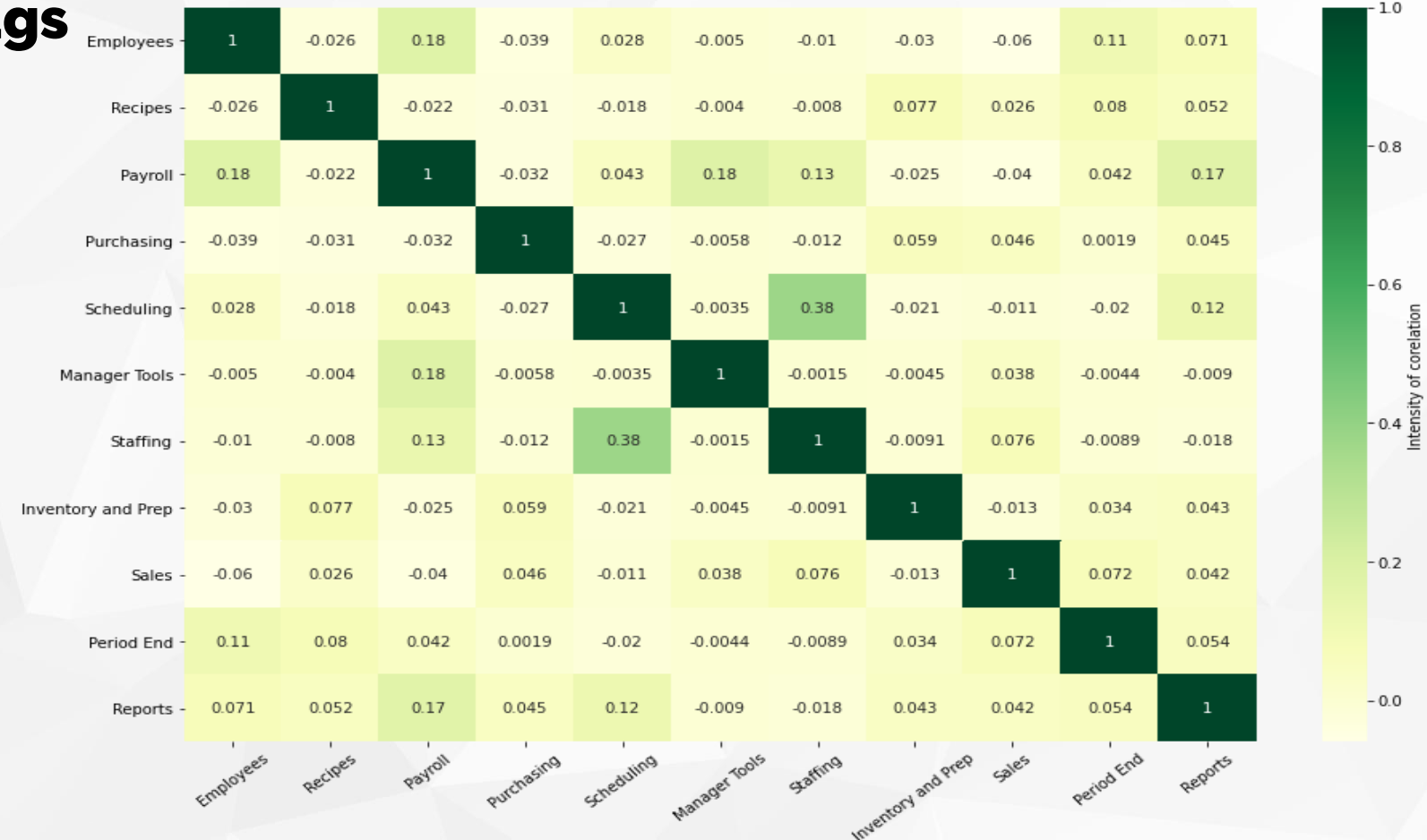
- Out of 2628 samples I have taken 2.4 percent of bugs are being fixed in less then a day
- Maximum time taken for bugs is 571 days is it true? find this from the bug
  Bug : https://jira.ncr.com/browse/NBO-2446
- 13% of bugs have taken more then 100 days. Does Priority and severity effect completion rate ?
  Lets see

Priority – No of bugs completed in more then 100 days	Severity – No of bugs completed in more then 100 days
P4 -157	S4-81
P3 – 122	S3-195
P2 – 55	S2-80
P1 – 12	S1-8

Correlation of Components for bugs

- A mutual relationship or connection between two or more variables which are responsible for an effect to take place is called Correlation of variables.
- A correlation coefficient is a numerical measure of some type of correlation, meaning a statistical relationship between two variables.
- Any component's correlation can be measured with correlation coefficient. More the correlation coefficient more is the relation between components that caused bugs.
- Does any correlation exist in NBO's components that caused bugs? lets see from the heatmap marked with correlation coefficient between two components

Correlation of Components for bugs



Examples of Correlation between components

- From heatmap we see that Recipe's and inventory & Prep has correlation coefficient of 0.77 which is highest in Heatmap .
- Lets see a bug which is caused due to issues in both inventory & prep and recipes.

  Ex1: https://jira.ncr.com/browse/NBO-15156

  Ex2: https://jira.ncr.com/browse/NBO-2799

- From heatmap we see that Employee and sales has correlation coefficient of -0.06 which is least in Heatmap, which means there is not much correlation between these components.
- Its true because both are component's from two different modules which are labor and inventory.

Impediments

- Out of all the components in NBO ,I considered only 11 components from switchboard due to data availability constraints.
- Since there are some assumptions involved ,This analysis could be used for reference to any tasks after getting reviewed by someone having good knowledge on NBO’s bugs trends.
- Please let me your suggestion's and improvements that I could in the analysis