HR ANALYTICS CASE STUDY
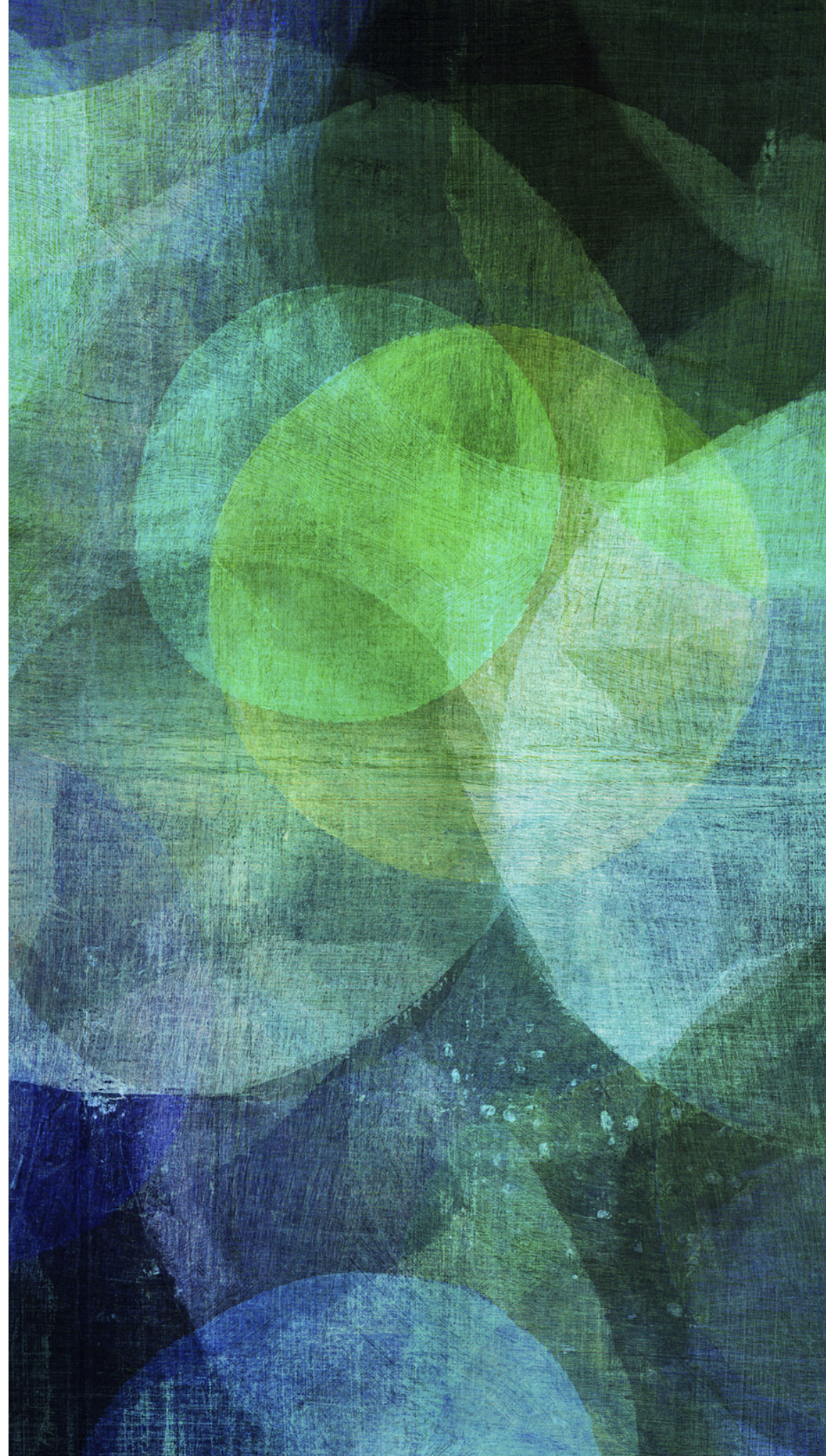
Employee Attrition Analytics

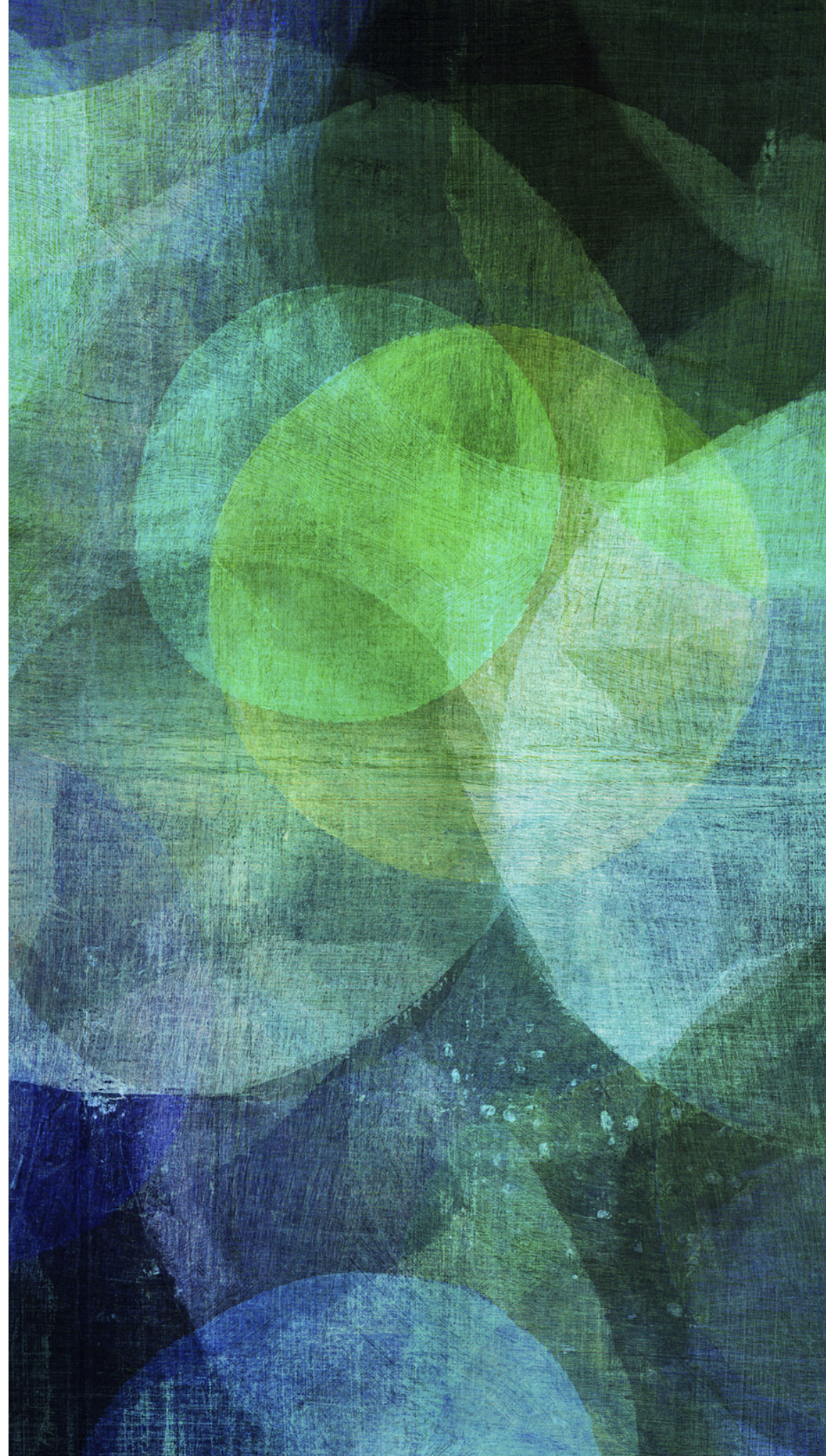*Group members: Amrita B., Sunny, Sasi B, Shafeeq R*

PROBLEM STATEMENT

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➤ Company notices around 15% employee attrition every year, causing various issues.

➤ Company wants to curb attrition of employees by:

  ➤ Identifying changes to be made to curb attrition

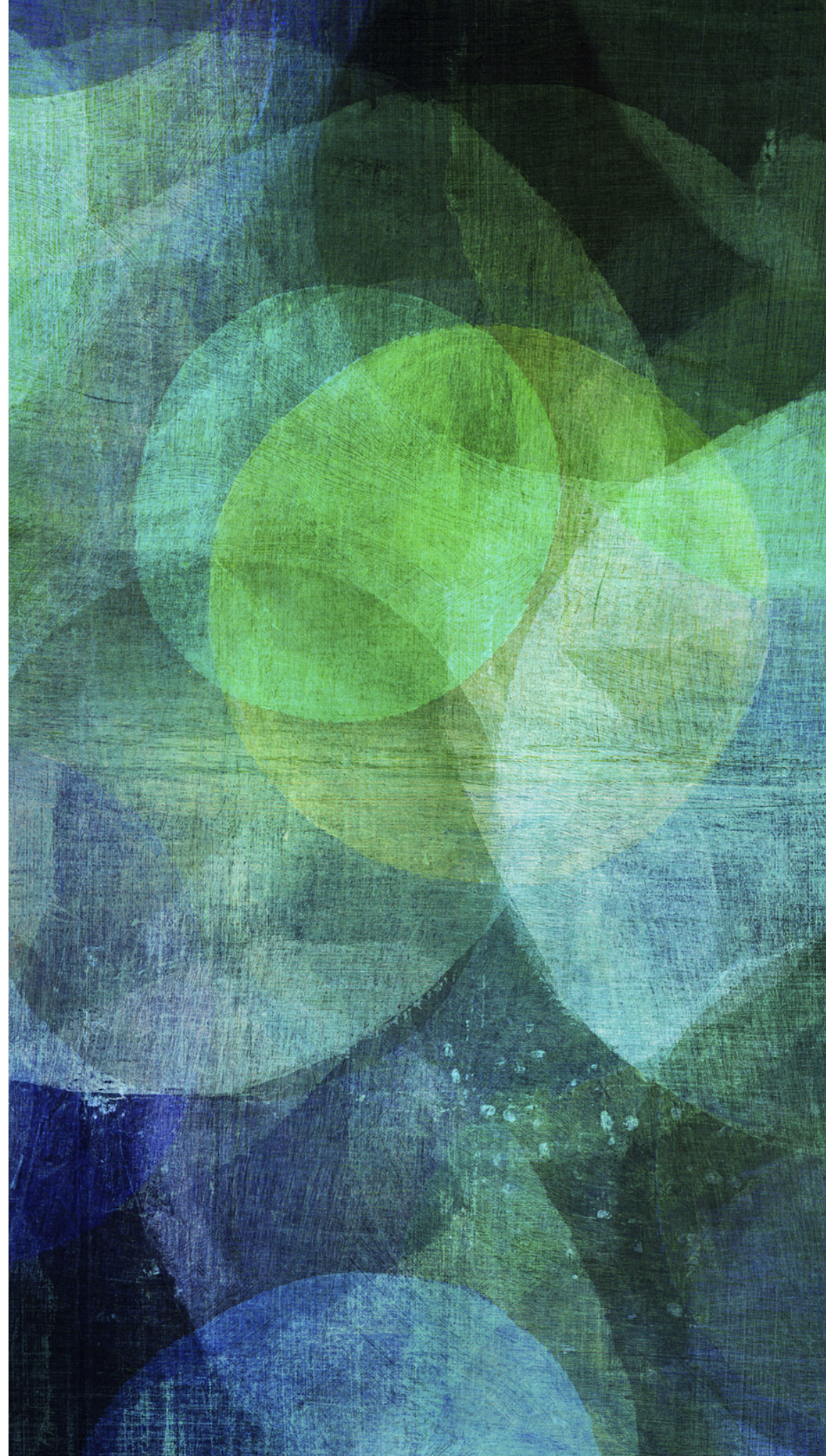 ➤ Identify most influential variables that cause attrition

THE DATA

THE DATA

➤ We are presented with a dataset of close to 4,000 records of employees.

➤ Along with basic employee details, we also have 4 other data files:

   ➤ Employee survey data which gathers employee's perspective of the job

   ➤ Manager survey data which gathers management perception of the employees

   ➤ In and out times for the year 2015 which collects the time spent by employee in office each day
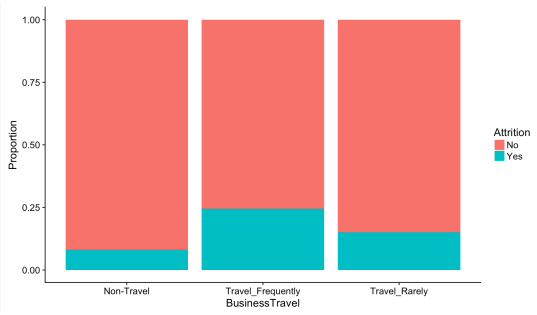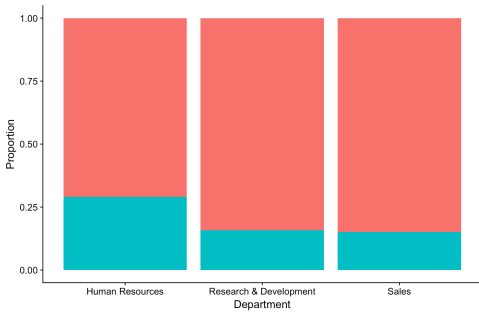
ANALYSIS

ANALYSIS

➤ After inferring data points, merging and cleaning up the data to make one consolidated data file, we find that the attrition rate is just over 16%.

➤ General exploratory analysis shows that the factors causing attrition are:

    ➤ frequent travelers,

    ➤ employees from HR department,

    ➤ employees working in research,

    ➤ those less satisfied with the job,

    ➤ those with poor work-life balance,

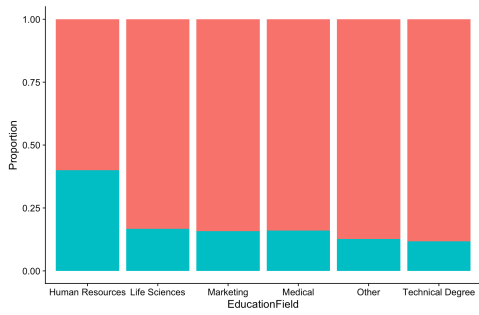   ➤ who have extreme involvement at work (too low and too high),
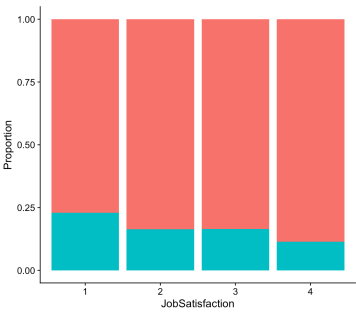
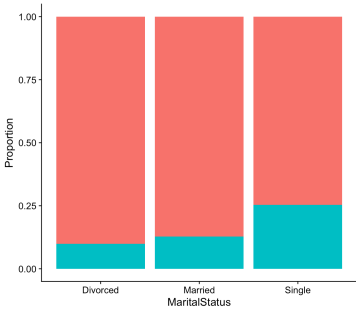ANALYSIS (CONT.) – ATTRITION BY VARIOUS ATTRIBUTES

Business Travel

HR Department
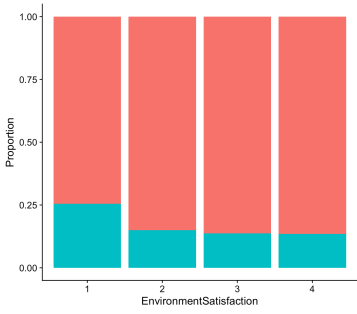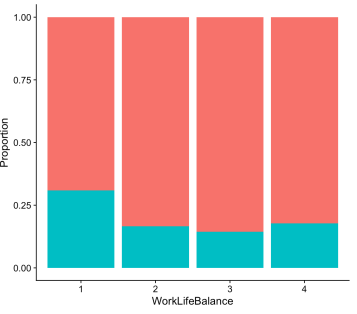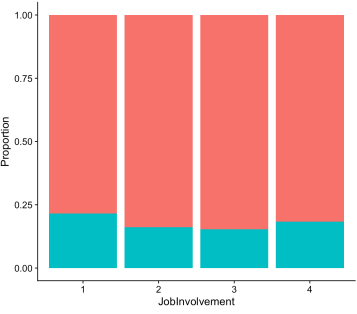
Education Field

Job Satisfaction

Marital Status

Environment Satisfaction

Work-Life Balance

Job Involvement
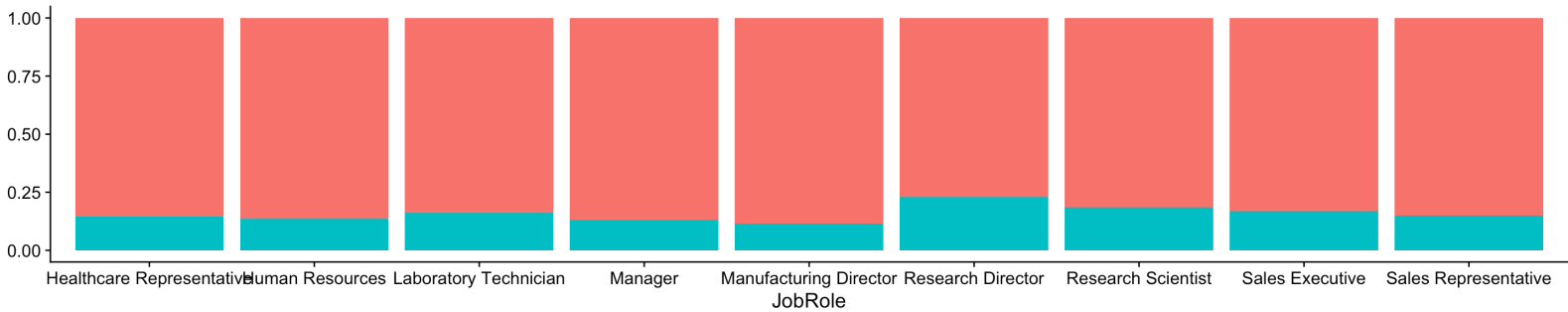
Job Role

Attrition
No
Yes

ANALYSIS (CONT.) – ATTRITION BY VARIOUS ATTRIBUTES

➤ Most attritions were seen among younger employees

➤ Lower salaries seem to cause attrition

ANALYSIS (CONT.) – ATTRITION BY VARIOUS ATTRIBUTES

➤ People who have had multiple jobs in the past are more likely to quit.

➤ Employees with less experience are more likely to quit.

ANALYSIS (CONT.) – ATTRITION BY VARIOUS ATTRIBUTES

➤ Lesser number of years with a manager seems to affect attrition.

➤ Longer work hours cause attrition.
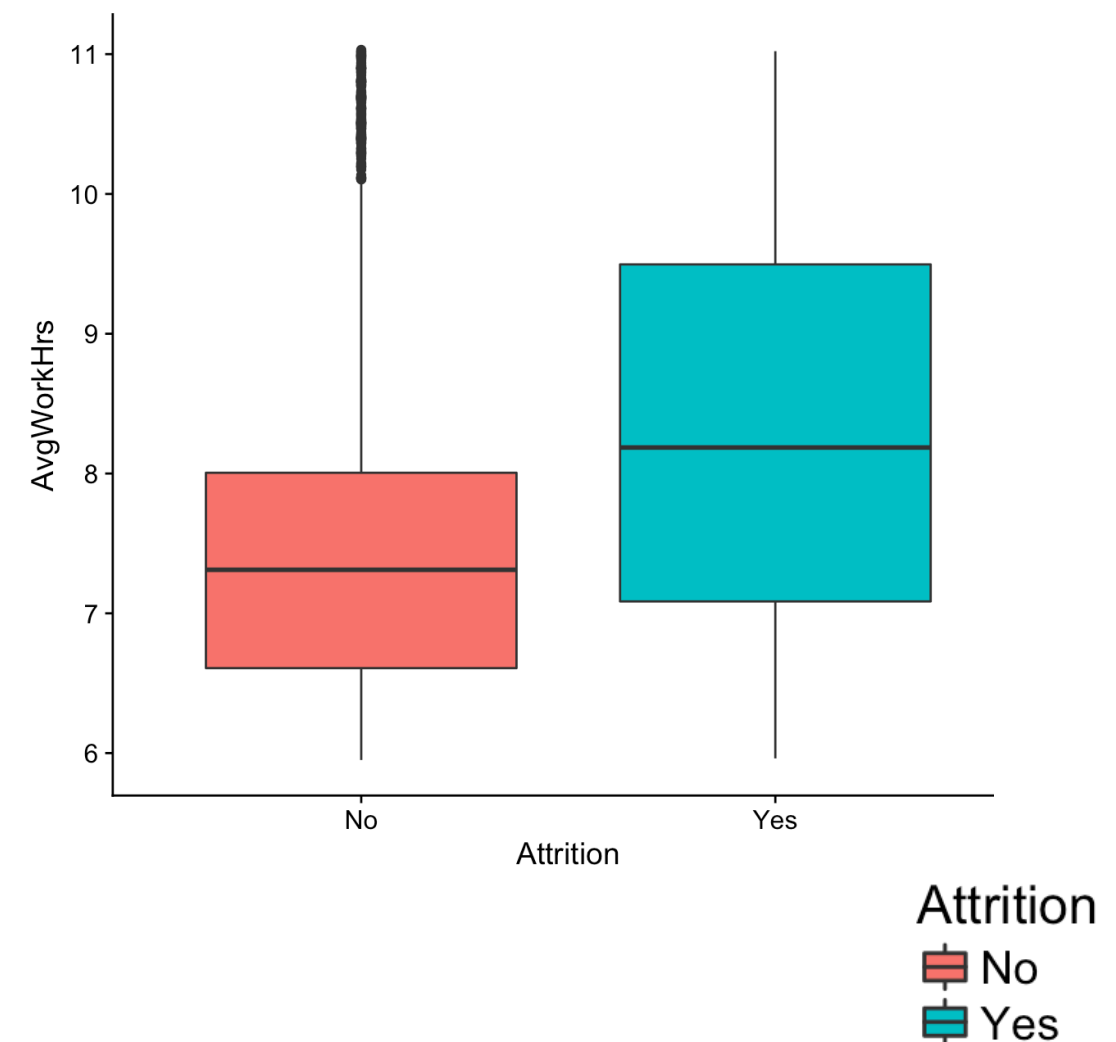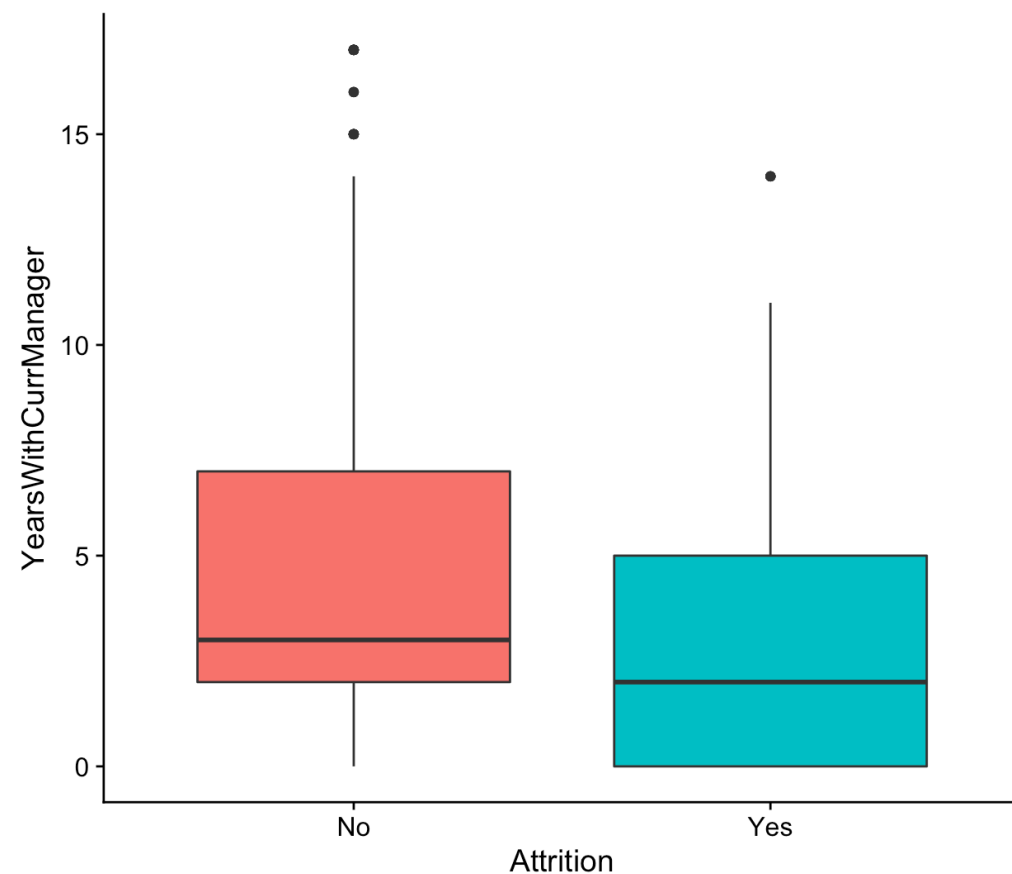
PREDICTIVE MODEL DETAILS

➤ A predictive model was built to identify most important variables influencing attrition.
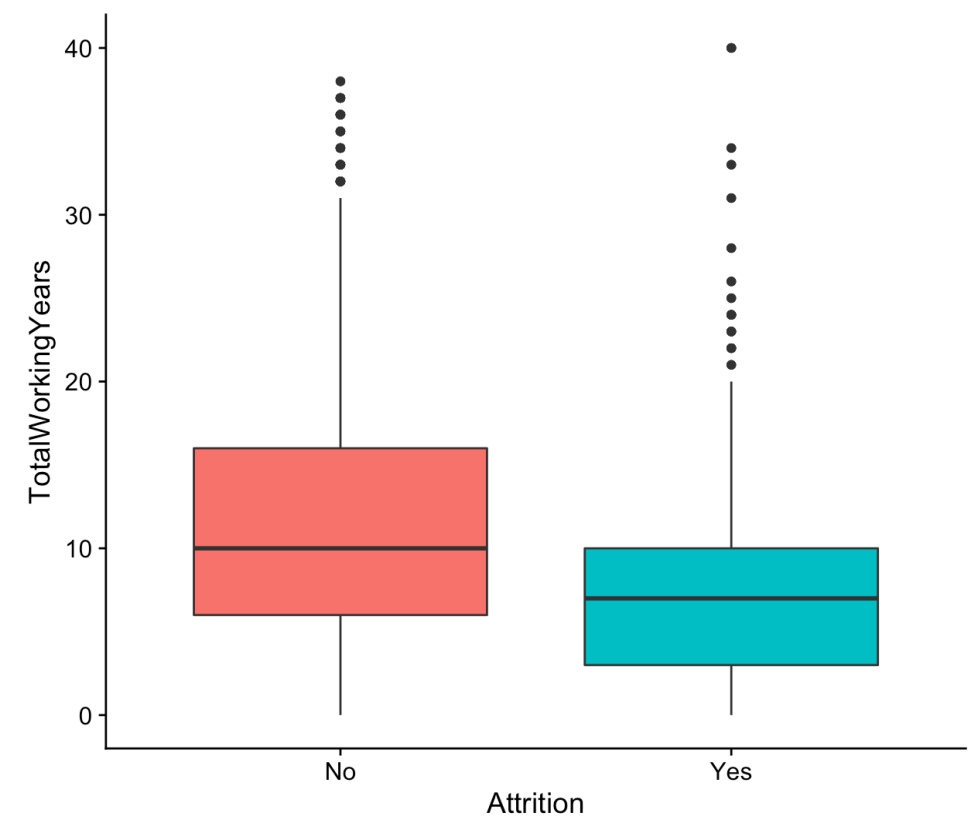
➤ Best model was found after 18 iterations of removal of variables.

➤ Optimum cut off value was chosen as 0.184, based on sensitivity and specificity trend.

➤ Achieved

　➤ Accuracy 77%

　➤ Sensitivity 77%

　➤ Specificity 77%
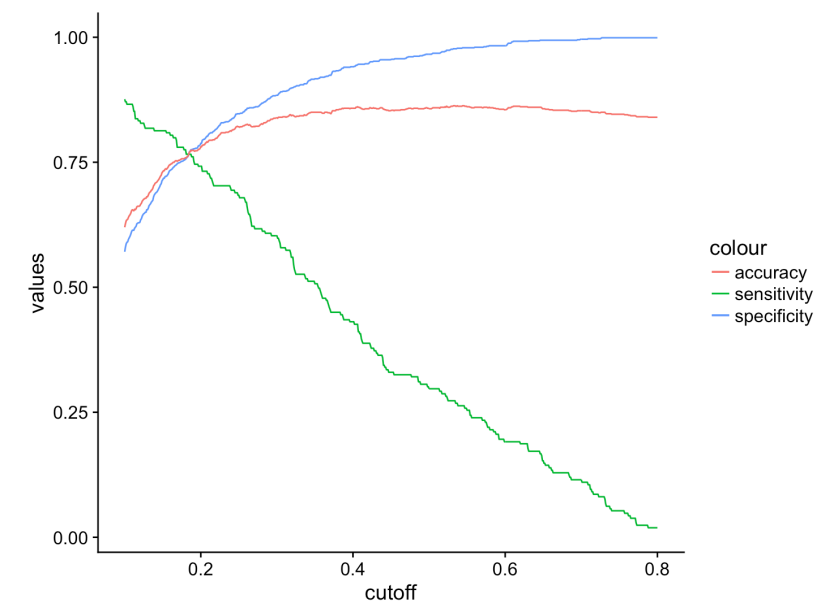
LIFT, GAIN, KS STATISTIC

➤ Lift and Gain charts were plotted for determining model effectiveness

bucket	total	totalresp	Cumresp	Gain	Cumlift
1	129	77	77	36.84211	3.684211
2	129	50	127	60.76555	3.038278
3	129	28	155	74.16268	2.472089
4	129	16	171	81.81818	2.045455
5	129	11	182	87.08134	1.741627
6	129	8	190	90.90909	1.515152
7	129	5	195	93.30144	1.332878
8	129	2	197	94.25837	1.178230
9	129	4	201	96.17225	1.068581
10	129	8	209	100.00000	1.000000
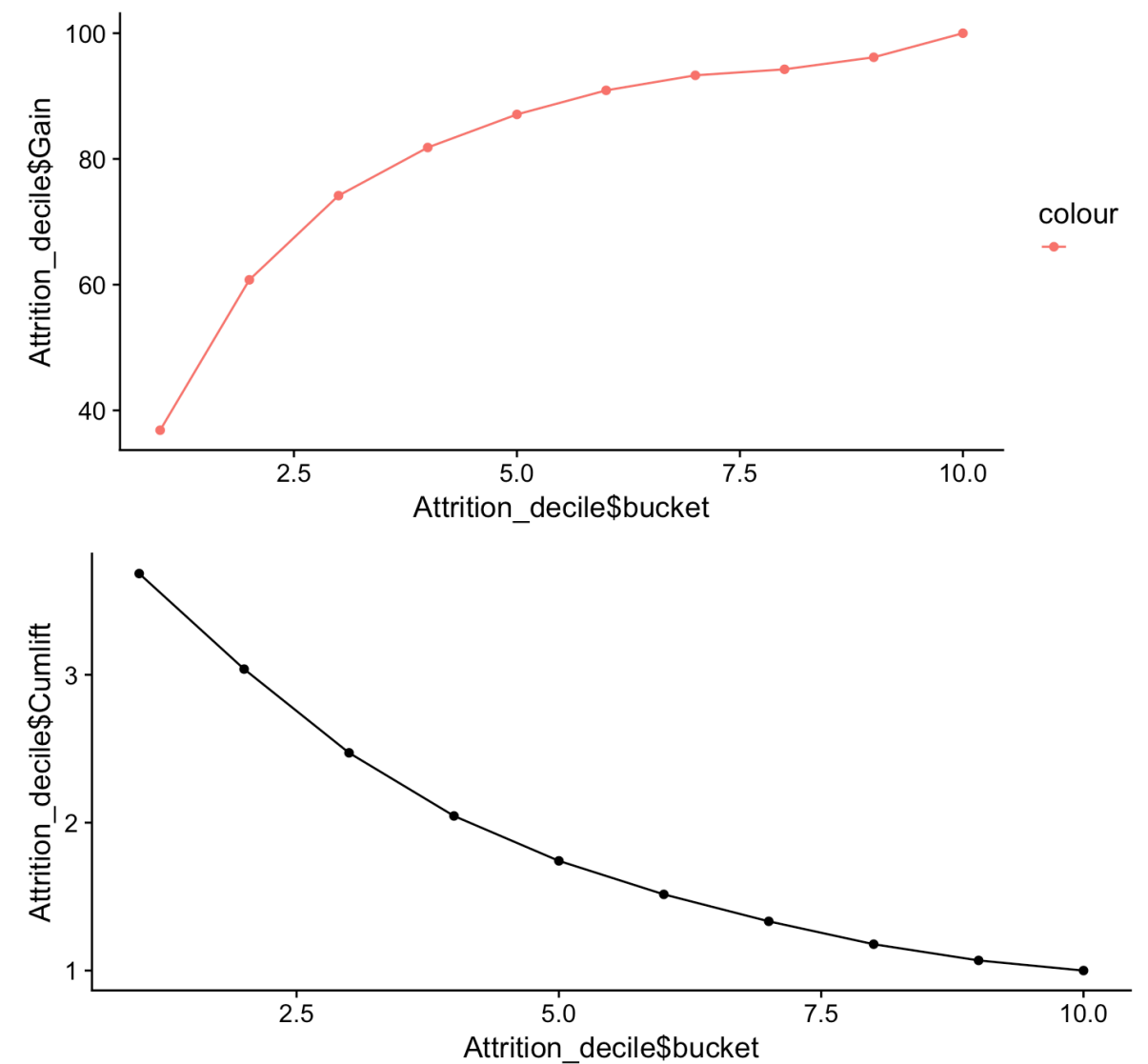
LIFT, GAIN, KS STATISTIC

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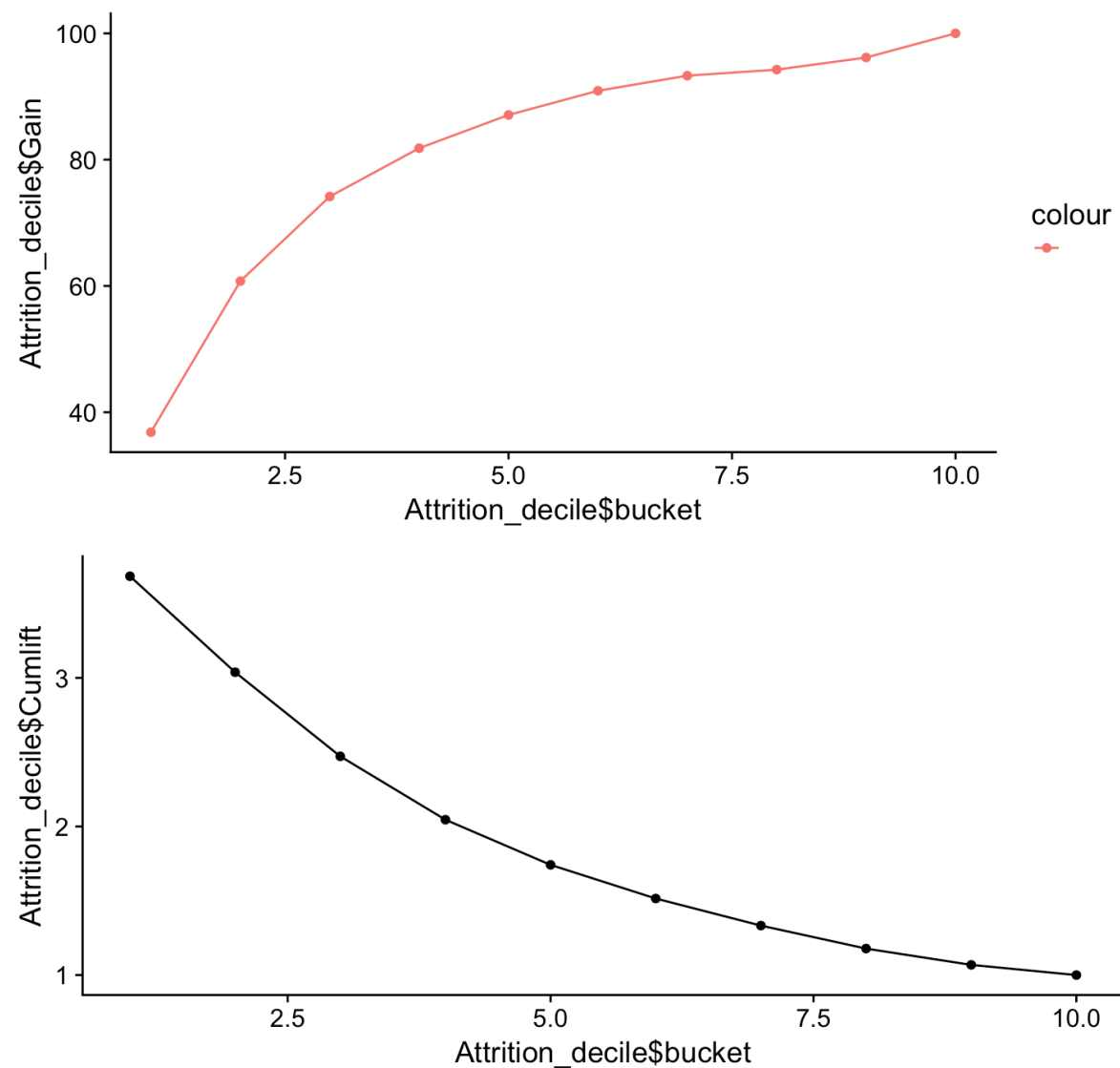
➤ K-S was plotted and K-S statistic was calculated as 53.1%

PREDICTIVE ANALYSIS – FINDINGS

- ➤ Employee attrition is **positively** correlated with

  - ➤ Number of companies worked previously

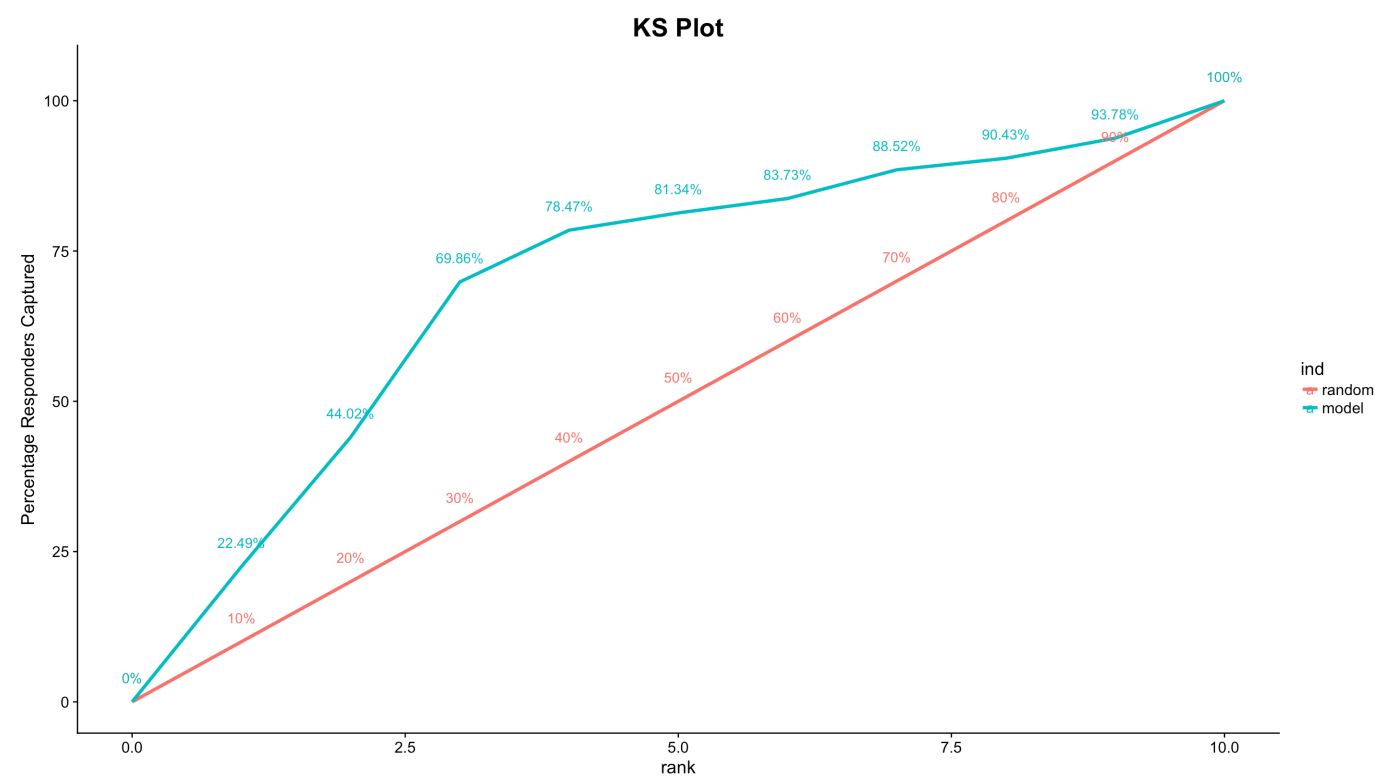 - ➤ Years since last promotion

  - ➤ Average work hours

  - ➤ Extensive business travel

  - ➤ Single employees

- ➤ Employee attrition is **negatively** correlated with

  - ➤ Total working years

  - ➤ Training time last year

  - ➤ Years with current manager

  - ➤ Manufacturing director

  - ➤ Environment satisfaction

  - ➤ Job satisfaction

  - ➤ Work like balance

SUMMARY
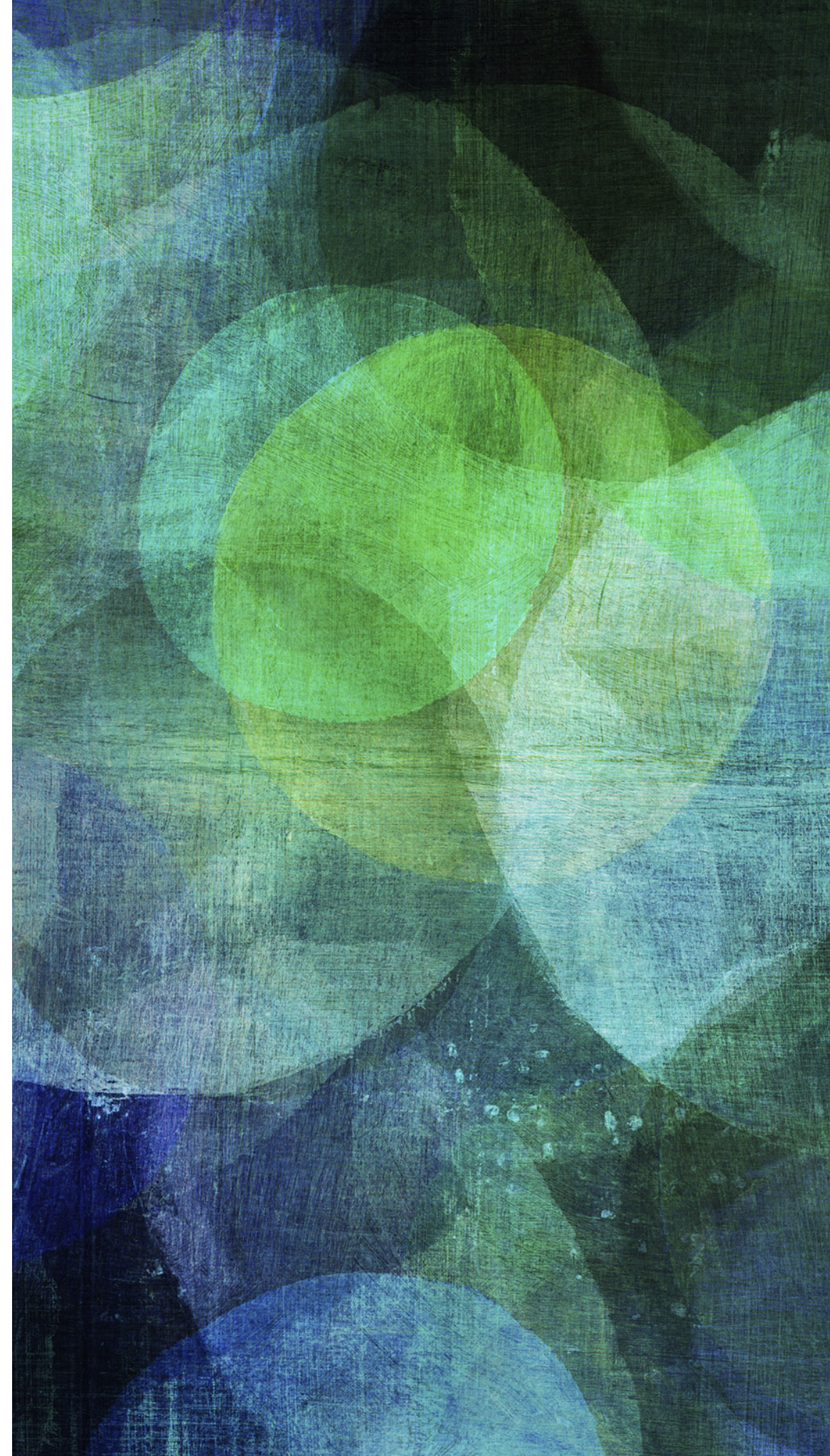
SUMMARY

➤ Employees most likely to quit -

  ➤ Employees who have worked in a considerable number of companies worked previously

  ➤ Who have not been promoted in a long time

  ➤ Who are working longer work hours

  ➤ Who have extensive business travel

  ➤ Unmarried employees

  ➤ Those with less years of work experience

  ➤ Who have not been provided training recently

  ➤ Who have lower job and environment satisfaction

  ➤ Who have poor work-life balance

  ➤ Who are under new managers

ACTION ITEMS

Recommendations
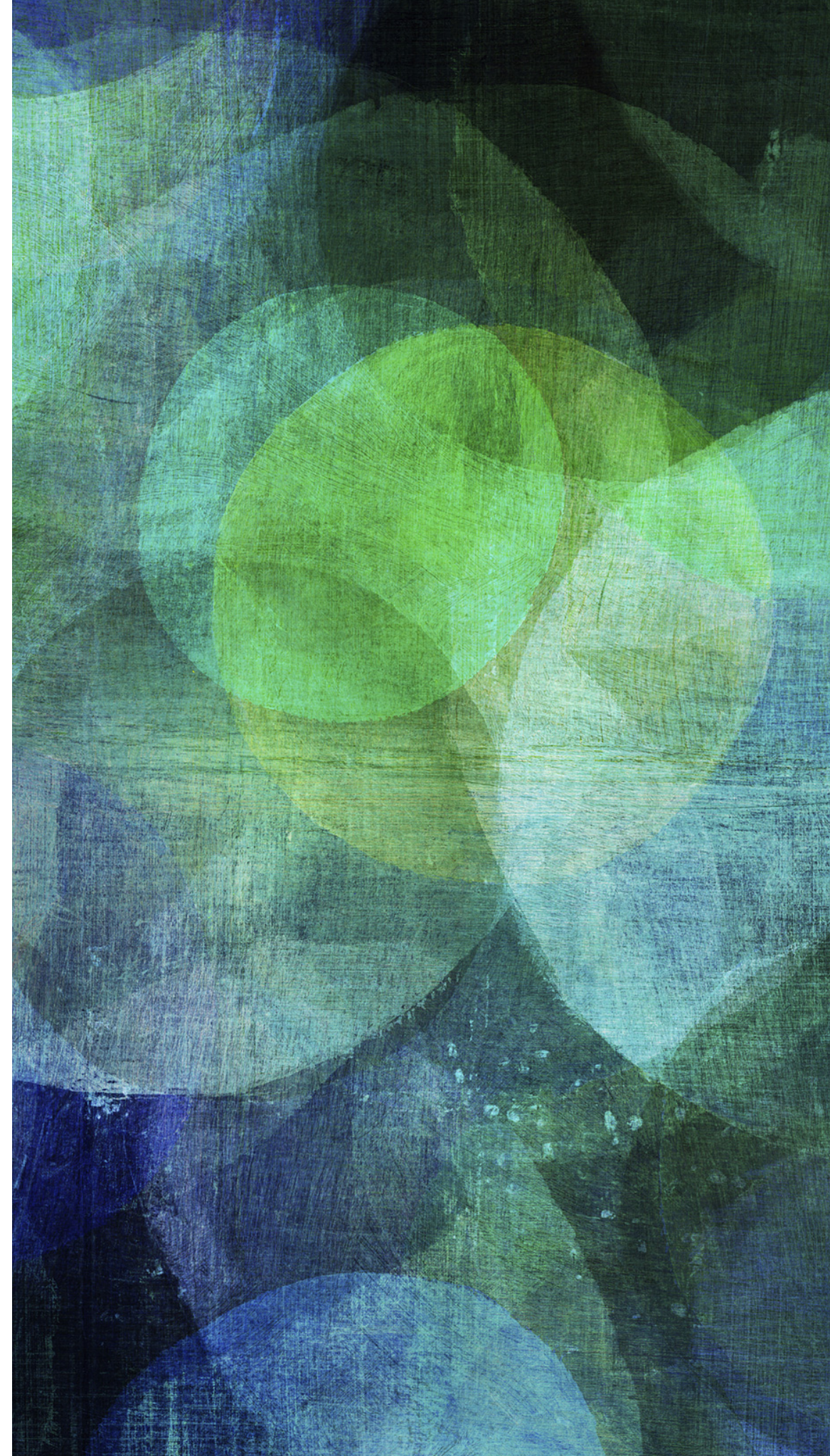
RECOMMENDATIONS

➤ Long term strategy:

   ➤ Curb long work hours by better project and resource planning.

   ➤ Limit business travel and identify potential backup resources.

   ➤ Establish extensive learning and training programs

   ➤ Place better management review and promotion processes for deserving employees

➤ Short term goals

   ➤ Segment risky employees and identify which of these causes are affecting them.

   ➤ Immediately identify pending promotion cases and follow through.

   ➤ Plan wellness, entertainment and other activities to keep younger employees motivated

   ➤ Immediately send a special feedback requests to all employees on these points so that any immediate attrition case can potentially be avoided.

   ➤ Identify employee issues with new managers by allowing 360 degree feedback every quarter.

THANK YOU