

SC1015 Mini Project

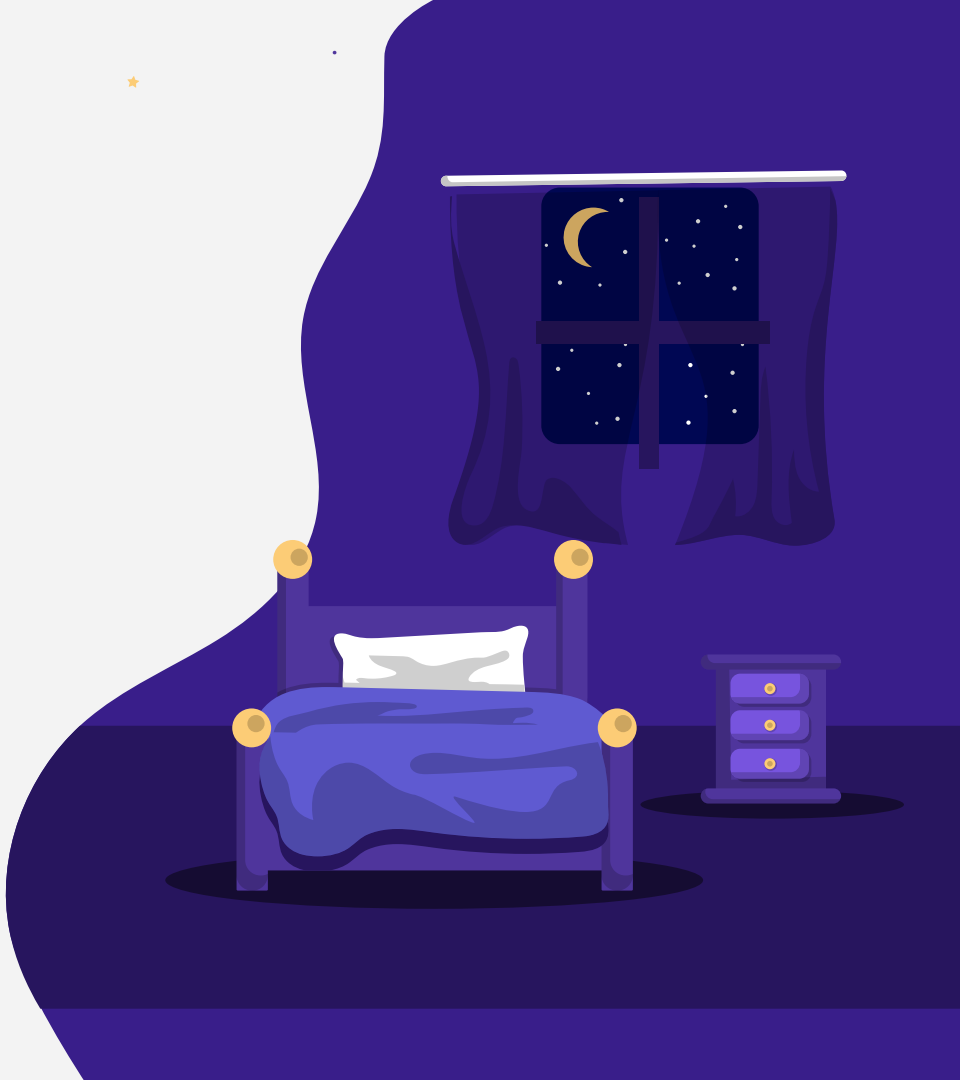
Sleep Efficiency Dataset

Lab Group A132 Team 9

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Sleep!



Studies have shown that adults
require 7 or more hours of sleep per
night

70 - 96% of college students sleep < 8
hours a night
>50% of college students sleep <7
hours a night



**How can we
maximise
our REM
sleep?**



REM sleep

REM sleep plays an important role in dreaming, memory, emotional processing and healthy brain development



Variables

Sleep duration, Bedtime, Caffeine Consumption, Alcohol Consumption, Exercise Frequency

Data after cleaning

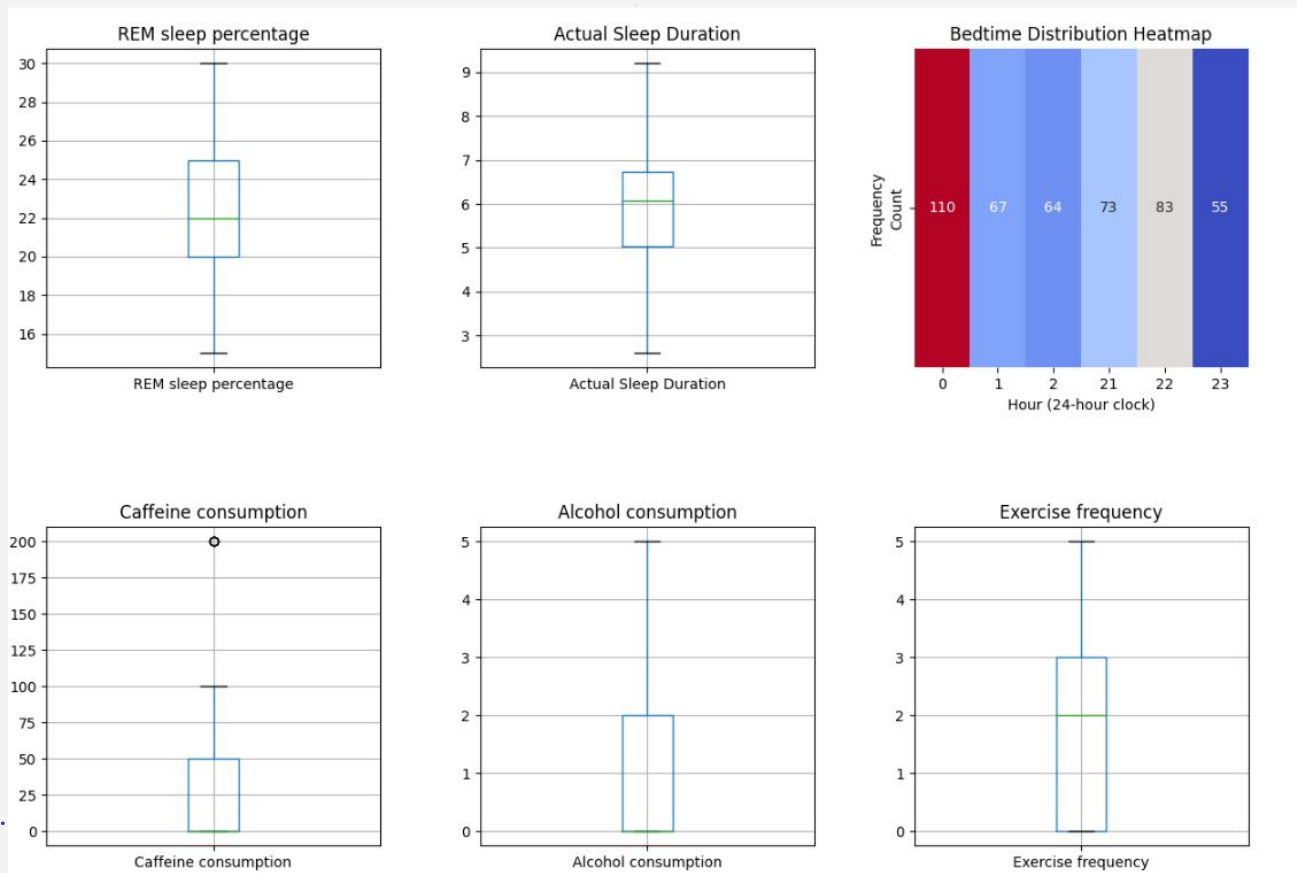
	ID	Age	Sleep duration	Sleep efficiency	Caffeine consumption	Alcohol consumption	Exercise frequency	REM sleep percentage	Actual Sleep Duration	Btime
0	1	65	6.0	0.88	0.0	0.0	3.0	18	5.280	100
1	2	69	7.0	0.66	0.0	3.0	3.0	19	4.620	200
2	3	40	8.0	0.89	0.0	0.0	3.0	20	7.120	2130
3	4	40	6.0	0.51	50.0	5.0	1.0	23	3.060	230
4	5	57	8.0	0.76	0.0	3.0	3.0	27	6.080	100
...
447	448	27	7.5	0.91	0.0	0.0	5.0	22	6.825	2200
448	449	52	6.0	0.74	25.0	0.0	3.0	28	4.440	2100
449	450	40	8.5	0.55	0.0	3.0	0.0	20	4.675	2300
450	451	45	7.0	0.76	0.0	0.0	3.0	18	5.320	2100
451	452	18	7.5	0.63	50.0	0.0	1.0	22	4.725	230

452 rows × 10 columns

NaN values substituted with
Mode



Data distribution

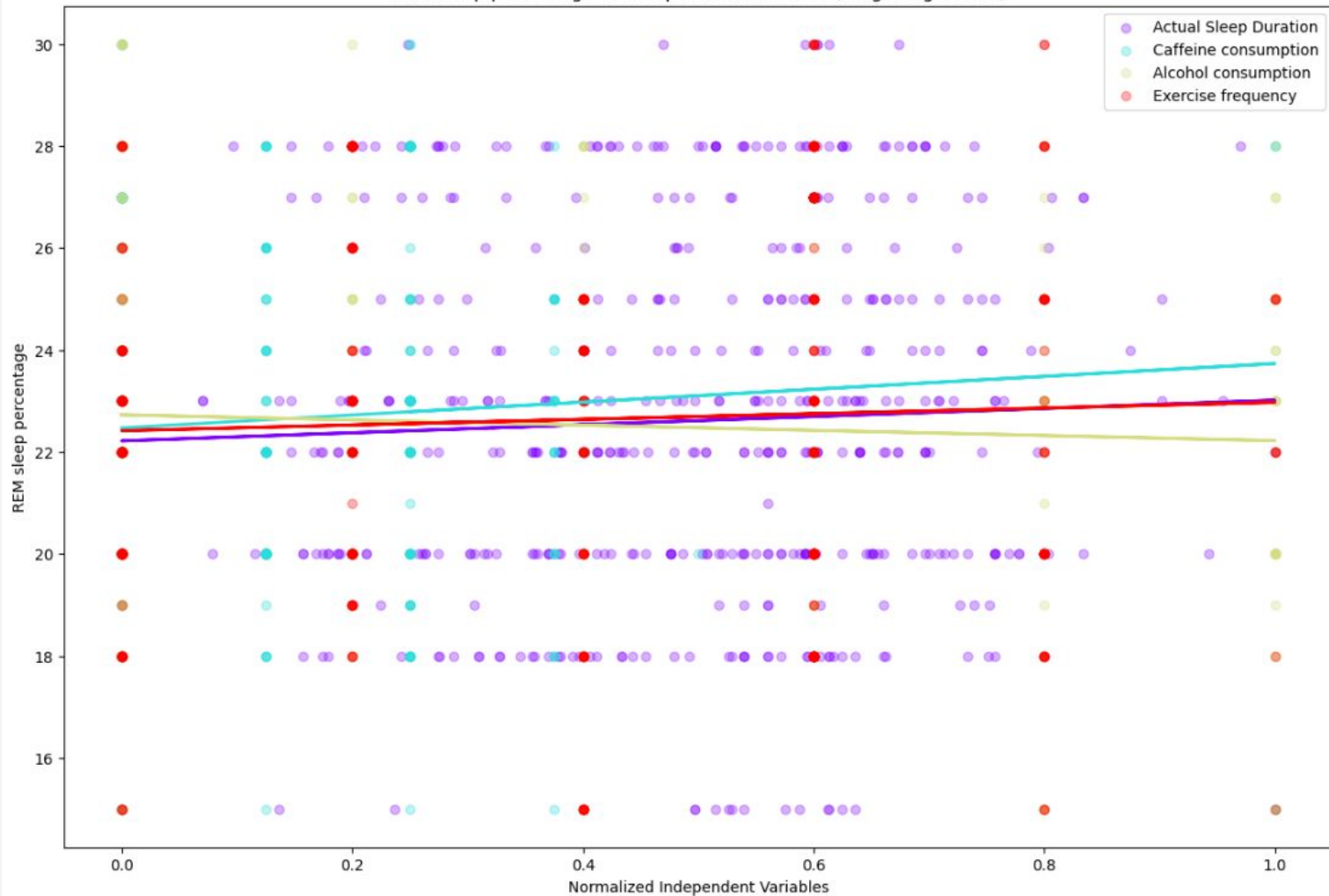


Ridge Regression



Why did we choose this machine-learning model ?

REM sleep percentage vs Independent Variables (Ridge Regression)

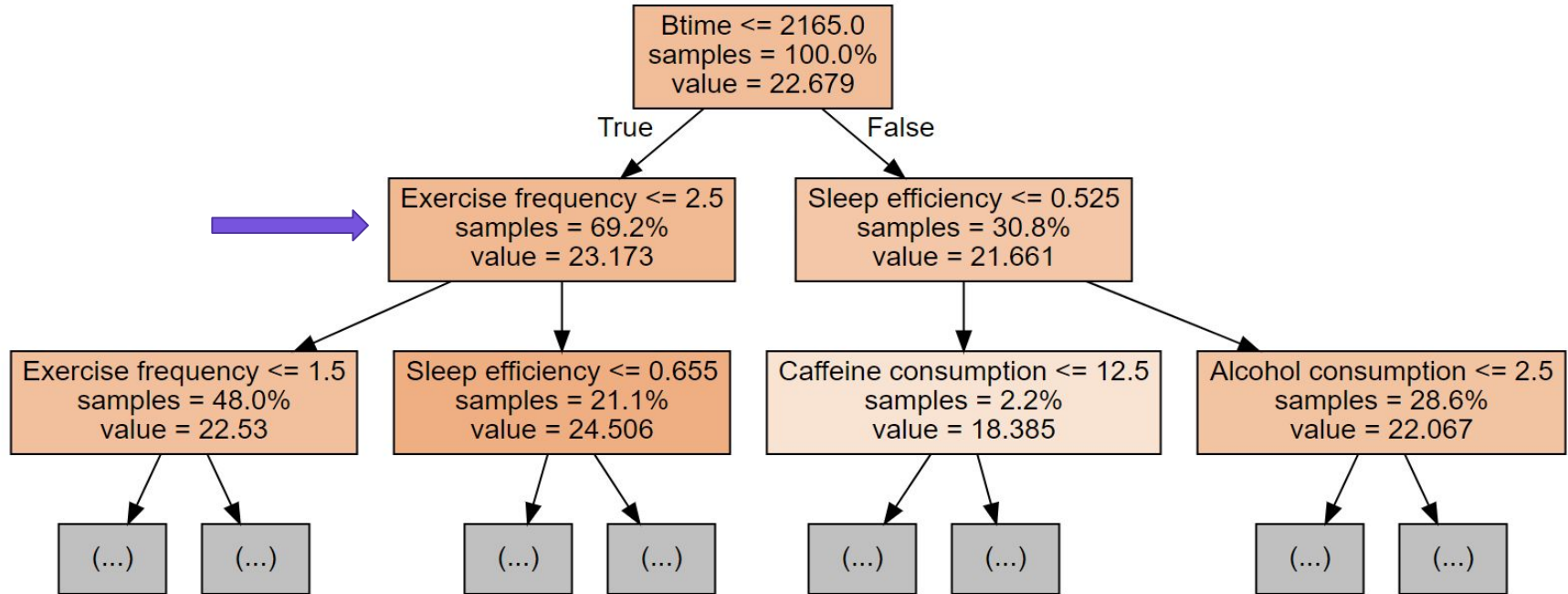


Random Forest Regression



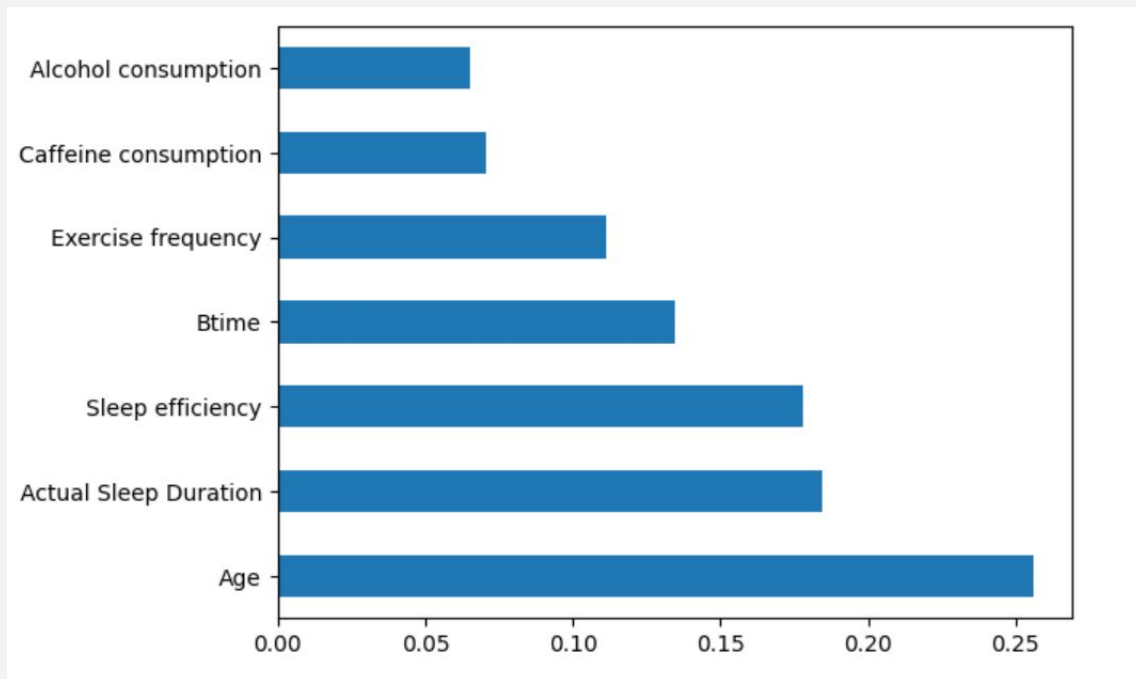
**Why did we choose this
machine-learning model ?**

Data Visualisation(Part of the forest)





Feature Importances



Outcome

- An individual should focus on getting 7-9 hours of sleep a day
- Slight consumption of caffeine
- Minimise alcohol consumption

Academic takeaways

- Random forest analysis
- Ridge Regression



Thanks

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, infographics & images by **Freepik**





Reference list

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