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Analysis of Impact of Age on Mobile usage Hours Per Day and on Mobile Data used Per Day

Krusha. R. Bhanushali
NMIMS University, Mumbai

Abstract: There is rapid development in technology. Mobile phones have become a crucial part of everyone's life. The total number of hours spent on mobile usage depends on a number of factors including age. Age also defines the amount of mobile data used by a person. Hence, we can analyse the impact of age on mobile usage hours per day and data used per day.

I. OBJECTIVE

A. To understand the relation between age and mobile usage hours in a day.
B. To understand the relation between age and amount of data used in a day.
C. To determine the correlation between variables.
D. To interpret the data with the help of a graph.
E. To interpret the results achieved and depict the future value.
F.

II. INTRODUCTION

The amount of data used and the number of hours a person uses a mobile phone depends on the age of the individual. The mobile usage rate and the total amount of mobile data used per day differ from person to person depending on age.
This survey is necessary so as to know the impact of age on mobile usage rate as well as mobile data used. The analysis was done by collecting primary data by circulating survey forms via Whatsapp and Instagram to groups of people of different age groups.

III. DATA

Sr. No	Age	Mobile usage hours per day	Data used per day
1	39	8	1
2	39	8	1
3	16	3.5	2
4	52	3	1.5
5	22	2	0.5
6	22	7	1
7	22	5	1.5
8	18	4	2
9	18	5	2
10	21	5	1
11	50	3	1
12	22	2	1
13	18	3.5	0.7
14	47	5	1
15	26	5	1
16	22	6	1
17	18	12	2
18	19	7	1.5
19	18	6	1.5
20	18	10	0.8

21	17	10	1.5
22	20	5	1.5
23	18	3	1.5
24	18	10	1
25	18	4	2
26	23	6	0.7
27	19	2	5
28	21	12	1
29	45	3	2
30	17	2	2
31	18	3	0.4
32	47	4	0.8
33	17	6	1.5
34	18	4	0.7
35	19	6	1
36	18	5	1
37	18	6	1
38	40	3	1
39	22	5	0.7
40	22	8	1
41	50	4	0.2
42	18	4	0.7
43	49	3	1
44	44	8	0.5
45	48	12	1
46	41	5	2
47	18	2	2
48	17	10	2
49	34	2	1
50	26	5	2
51	39	4	1.5
52	39	3	2
53	18	6	1
54	41	1	1.5
55	33	5	1
56	16	3	1
57	42	7	1
58	43	3	1.5
59	25	2	1
60	36	3	2
61	41	10	1.5
62	25	8	1.5
63	45	8	1.5
64	40	8	1
65	38	7	1
66	16	4	1

67	40	5	1
68	40	2	0.5
69	45	6	0.6
70	36	2	0.6
71	41	8	8
72	36	4	1
73	42	3	1
74	13	1.5	0.5
75	28	5	1
76	46	12	1
77	16	2	1
78	17	8	1
79	42	3	1
80	43	3	1
81	16	6	2
82	17	1.5	1.5
83	16	3	1
84	16	3	1
85	16	3	1
86	22	2	0.3
87	17	1	1
88	16	2	1
89	34	12	3
90	50	8	1
91	18	7	0.5
92	18	7	0.5
93	24	7	1
94	13	12	0.8
95	16	1	0.5
96	20	6	2
97	59	7	2
98	51	4	0.3
99	49	3	1
100	26	8	1
101	34	8	1
102	47	5	1
103	48	12	3
104	17	3	1
105	32	1	0.3
106	39	2	1
107	22	5	1
108	17	4	1
109	46	4	2
110	46	4	2
111	30	4	1
112	17	3	1

113	18	5	1
114	16	3	1.5
115	18	4	1
116	25	4	1.5
117	18	4.5	1.5
118	17	8	1
119	16	8	1
120	24	1.5	0.3
121	46	8	0.8
122	16	4	1.5
123	42	4	1
124	19	7	2
125	18	6	0.2
126	19	4	0.5
127	14	1	0.5
128	21	6	0.25
129	39	4	0.7
130	42	7	0.75
131	21	12	1
132	19	1	1
133	17	8	2.00
134	17	8	2.00
135	16	8	1.5
136	29	4	2
137	26	6	1.5
138	21	2	0.2
139	22	7	2
140	22	7	2
141	18	4	1.5
142	21	7	2
143	19	8	2
144	21	3	3
145	21	5	1.5
146	21	4	1.5
147	19	4	4
148	18	12	1
149	18	12	1
150	51	5	1
151	60	8	1
152	26	12	1.5
153	27	12	2
154	16	5	3
155	26	4	1.5
156	38	10	1
157	18	3	0.4
158	18	5	2
159	17	6	1

160	22	5	1
161	18	5	2
162	18	6	1.5
163	21	4	1
164	18	5	0.5
165	15	12	1
166	18	7	1.5
167	19	1	1
168	20	8	1.5
169	19	4	0.1
170	19	1	1
171	18	4	1.5
172	19	3	1.5
173	16	2	1
174	18	1.5	4
175	18	3	1.5
176	19	4	1.5
177	18	4	1.5
178	19	4	1.5
179	19	3	2
180	18	4	2
181	18	3	2
182	18	3	1.5
183	18	3	2
184	16	2	2
185	17	3	1.5
186	14	1.5	1
187	18	4	3
188	16	3	2
189	19	2	2
190	18	3	2
191	18	1	1
192	16	3	1.5
193	16	4	3
194	16	3	2
195	17	3	2
196	18	16	4
197	18	4	1
198	20	5	4
199	18	4	1
200	18	3	2
201	20	10	1
202	18	4	1.3
203	18	5	1
204	50	4	1.5
205	50	5	2
206	49	4	1

207	40	3	1.5
208	45	2	1.5
209	24	7	1.5
210	17	2	2
211	20	10	2
212	26	8	1.5
213	48	1	1
214	25	6	1
215	50	1	1.5
216	47	3	1
217	52	2	1
218	46	2	2
219	50	2	2
220	53	1	1.5
221	50	2	1
222	52	3	1.5
223	51	2	1.5
224	30	8	1
225	49	1.5	2
226	47	1.5	1
227	45	1	1.5
228	49	2	2
229	19	8	4
230	48	2	2
231	45	2	2
232	47	3	1.5
233	48	2	2
234	49	3	2
235	28	7	2
236	55	1	1
237	29	8	2
238	49	2	2
239	47	3	2
240	35	6	1.5
241	50	1	1
242	33	5	2
243	54	2	2
244	30	5	1
245	52	1	1
246	26	8	2
247	47	2	2
248	26	5	1
249	55	2	1.5
250	51	2	1.5
251	27	7	1
252	46	3	2
253	26	6	1.5
254	45	3	2
255	47	2	1
256	25	6	1.5
257	50	2	2
258	48	2	2
259	52	3	2
260	26	7	2
261	55	1	1

262	47	2	2
263	33	5	2
264	45	3	2
265	33	6	1.5
266	55	1	1
267	35	4	1
268	52	3	2
269	34	4	2
270	51	2	1
271	55	2	1
272	18	3	1.5
273	51	2	1.5
274	53	2	1.5
275	52	2	1.5
276	45	2	2
277	50	2	1
278	51	2	1.5
279	53	2.5	1.5
280	52	1	1
281	51	2	1.5
282	55	1	1
283	45	3	2
284	53	2	1.5
285	50	2	2
286	45	3	2
287	51	2	2
288	55	1.5	1
289	20	3	1.5
290	19	5	1.5
291	19	4	2
292	52	2	1.5
293	19	3	1.5
294	20	4	1.5
295	40	3	2
296	38	3	1.5
297	38	3	2
298	20	4	1.5
299	52	2	1.5
300	19	3	2
301	19	5	0.1
302	24	2	0.4
303	17	2	1
304	19	6	1
305	17	3	0.3
306	45	4	0.4
307	18	5	0.6
308	22	4	0.3
309	22	5	0.6
310	18	6	0.8
311	45	4	0.5
312	35	5	0.6
313	23	5	1

314	15	4	0.5
315	21	2	0.4
316	21	3	0.6
317	45	4	0.5
318	48	4	0.5
319	24	6	1.5
320	14	4	1
321	21	4	1
322	23	4	0.9
323	18	7	1.5
324	18	6	1.5
325	17	5	1.5
326	16	4	1
327	16	5	1.5
328	21	7	4
329	21	7	4
330	20	5	3
331	19	5	2
332	18	5	1.5
333	23	4	1
334	17	3	0.8
335	17	5	1.5
336	16	4	1
337	18	5	1.5
338	16	4	1
339	19	6	2
340	19	4	1
341	20	6	2
342	21	5	0.9
343	20	5	3
344	20	5	0.8
345	56	5	0.9
346	22	6	2
347	20	4	1
348	20	3	0.3
349	21	2	0.3
350	21	5	2
351	19	6	3
352	18	5	1
353	20	4	1
354	21	4	1
355	22	5	1
356	19	3	0.6
357	17	6	4
358	18	5	0.5
359	19	6	1
360	52	2	2
361	19	5	2

362	18	8	3
363	50	3	0.6
364	49	3	0.7
365	50	3	0.7
366	51	4	0.8
367	48	3	0.7
368	50	3	0.6
369	52	3	0.8
370	51	3	0.8
371	52	3	0.7
372	52	3	0.8
373	50	4	0.6
374	50	3	0.6
375	50	3	0.6
376	51	4	0.7
377	52	4	0.7
378	52	4	0.7
379	50	3	0.6
380	50	3	0.6
381	51	3	0.6
382	51	3	0.6
383	18	8	0.66
384	52	3	1.5
385	52	4	1
386	52	3	1.5
387	51	3	1
388	50	4	1.5
389	50	3	1.5
390	50	3	1.5
391	52	4	1
392	52	4	1
393	52	4	1
394	48	3	1.5
395	48	3	1.5
396	49	4	1
397	49	4	1
398	49	4	1
399	52	3	0.7
400	48	3	0.6
401	48	3	0.7
402	47	2.5	1.5
403	47	3	1.5
404	49	4	0.6
405	50	3.5	1.5
406	49	3	0.7
407	50	3.5	1.5
408	48	3	0.6
409	48	4	0.7
410	53	4	1.5
411	49	4	0.7
412	53	4	1.5
413	51	4	0.6
414	49	3	1.5

415	52	4	0.8
416	49	3	1.5
417	51	3	1.5
418	51	3	1.5
419	48	4	1.5
420	48	4	1.5
421	52	3	1.5
422	52	3	1.5
423	48	4	1.5
424	50	4	1.5
425	50	4	1.5
426	47	3	1.5
427	47	3	1.5
428	51	4	1.5
429	51	4	1.5
430	18	4	2.5
431	25	5	2
432	25	5	2
433	27	5	1.5
434	27	5	1.5
435	30	5	2
436	30	5	2
437	35	5	1.5
438	35	5	1.5
439	40	6	2
440	40	6	2
441	37	4	1.5
442	37	4	1.5
443	38	5	2
444	23	4	1.5
445	40	5	1.5
446	23	4	1.5
447	38	6	2
448	33	5	2
449	33	5	2
450	44	5	1.5
451	45	6	1.5
452	27	4	2
453	27	4	2
454	43	5	1.5
455	45	4	1
456	40	3	0.4
457	39	6	2
458	39	6	2
459	45	5	0.8
460	39	7	1.5
461	43	3	0.5
462	51	5	2

463	48	6	2
464	45	4	0.9
465	59	7	3
466	55	5	2
467	44	5	2
468	37	4	2
469	42	2	2
470	43	5.5	3
471	51	10	0.1
472	49	6	0.1
473	45	4	1
474	45	4	1
475	50	5	0.1
476	47	4	1
477	43	5	0.3
478	47	5	0.5
479	41	5	0
480	37	5	0.7
481	40	5	0.3
482	37	5	0.7
483	40	4	0.9
484	45	3	1
485	41	3	0.8
486	45	5	1
487	40	4	0.8
488	38	6	1
489	39	1	5
490	39	5	1
491	39	5	0.8
492	38	5	0.5
493	47	5	2
494	38	5	0.5
495	46	4	2
496	46	5	2
497	37	6	1
498	46	5	2
499	41	4	1
500	45	5	1.5
501	44	5	1.5
502	44	5	1.5
503	38	6	1.5
504	47	4	1
505	47	4	1
506	43	5	2
507	43	5	2
508	39	5	0.8
509	39	5	1.5
510	41	4	1
511	47	6	1.5
512	41	4	1
513	46	3	1
514	38	5	1.5
515	46	3	1
516	39	5	1.5
517	40	5	1.5
518	38	6	1
519	46	4	2

520	46	4	2
521	38	6	1.5
522	40	5	2
523	40	5	2
524	35	4	1
525	43	4	1
526	33	5	1.5
527	43	4	1
528	32	4	1.5
529	31	4	1.5

IV. ANALYSIS

A. *Correlation*

1) *Between Age And Mobile Usage Hours Per Day*

	Age	*Mobile usage hours per day*
Age	1	
Mobile usage hours per day	-0.25508	1

A negative correlation is a relationship between two variables that move in opposite directions.
Here we have a correlation of -0.25508, this means when age increases, mobile usage hours per day decreases.

2) *Between Age And Data Used Per Day*

	Age	*Data used per day*
Age	1	
Data used per day	-0.0855	1

A negative correlation is a relationship between two variables that move in opposite directions.
Here we have a correlation of -0.0855, this means when age increases, data used per day decreases.

B. *Regression*

1) *Mobile usage hours per day*

SUMMARY
OUTPUT

Regression Statistics	
Multiple R	0.25508441
R Square	0.06506806
Adjusted R Square	0.06329399
Standard Error	2.19001553
Observations	529

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	175.91094	175.91	36.677393	2.6521E-09
Residual	527	2527.5806	4.7962		
Total	528	2703.4915			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	5.86070707	0.252817	23.182	1.757E-82	5.3640542	6.35736	5.3640542	6.35736
Age	-0.0418305	0.0069071	-6.056	2.652E-09	-0.0553993	-0.02826	-0.055399	0.02826

Y=a +b X
Y=5.86070707+(-0.0418305) X
Y=5.86070707-0.0418305X
Depicting the future value:
Assume age(X)=55,
Substituting in the equation, Y will be 3.56002957
Assume age(X)=15,
Substituting in the equation, Y will be 5.23324957
This means, when age of an individual decreases that is becomes 15 from 50, mobile usage hours per day goes up from 3.56002957 to 5.23324957

2) Mobile data Used per Day

SUMMARY
OUTPUT

Regression Statistics	
Multiple R	0.085504975
R Square	0.007311101
Adjusted R Square	0.005427441
Standard Error	0.754457448
Observations	529

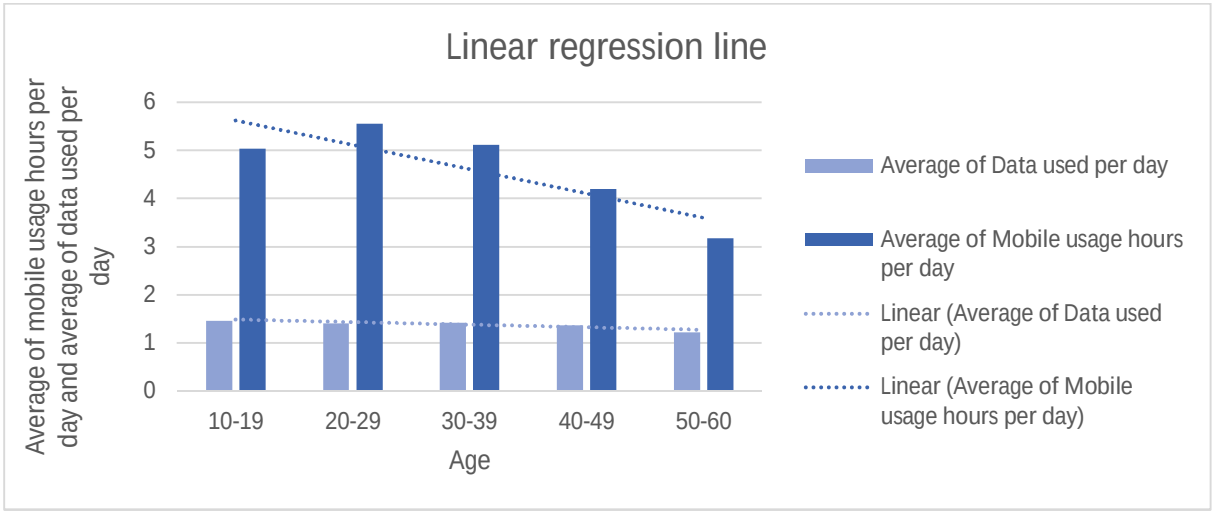
ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.209275	2.209	3.8813	0.04934909
Residual	527	299.9716	0.569		
Total	528	302.1809			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.537137197	0.087095	17.65	4E-55	1.36604094	1.708233	1.366	1.70823
Age	-0.00468783	0.002379	-1.97	0.0493	-0.00936225	-1.3E-05	-0.009	-1E-05

Y=a +b X
Y=1.537137197+(-0.00468783) X
Y=1.537137197-0.00468783X
Depicting the future value:
Assume age(X)=55,
Substituting in the equation, Y will be 1.27930654
Assume age(X)=15,
Substituting in the equation, Y will be 1.466819747
This means, when age of an individual decreases that is becomes 15 from 55, mobile data used per day goes up from 1.27930654 to 1.466819747

C. Graph



:

Graph depicting the linear regression line where age is on x-axis, average of mobile usage hours and average of mobile data used per day is on y-axis.

V. INTERPRETATION

A. There is a negative correlation in both cases: age and mobile usage hours per day, age and mobile data used per day. This shows that old people use less mobile and data whereas younger people use comparatively more mobile and data.

B. The depiction of future value by using regression helps us to know the inverse relation between age and mobile usage hours per day. There is not a vast variation between age and mobile data used per day. The impact of age on mobile data used is less.

C. The linear regression line is a downward sloping line in case of age and mobile usage hours per day showing an inverse relation between them. Whereas, in case of age and mobile data used per day the line is not too steep, this shows that age does not impact the mobile data usage largely.

VI. CONCLUSION

Age is the independent variable whereas mobile usage hours and mobile data used are the dependent variables, they depend on age of an individual. There is an inverse relation between age and mobile usage hours; age and mobile data usage. It can be concluded that the older a person gets the lesser are the mobile usage hours and data used. Older people don't prefer using mobile phones and mobile data as much as younger people do. The regression analysis shows that the impact of age on mobile usage hours is much more as compared to the impact of age on mobile data used.

REFERENCES

← Survey (Responses)

Form Responses 1

	Timestamp	Age	Mobile usage hours per c	Data used per day
2	2/19/2020 23:59:32	39	8	Approx 1 gb
3	2/20/2020 0:01:34	39	8	1 gb
4	2/20/2020 0:02:24	16	3.5	2GB
5	2/20/2020 0:03:55	52	3	1.5GB
6	2/20/2020 0:05:53	22	2	500mb
7	2/20/2020 0:07:10	22	7	1gb
8	2/20/2020 0:07:15	22	5	1.5 gb
9	2/20/2020 0:10:21	18	4	2GB
10	2/20/2020 0:10:48	18	5	2gb
11	2/20/2020 0:11:12	21	5	1gb

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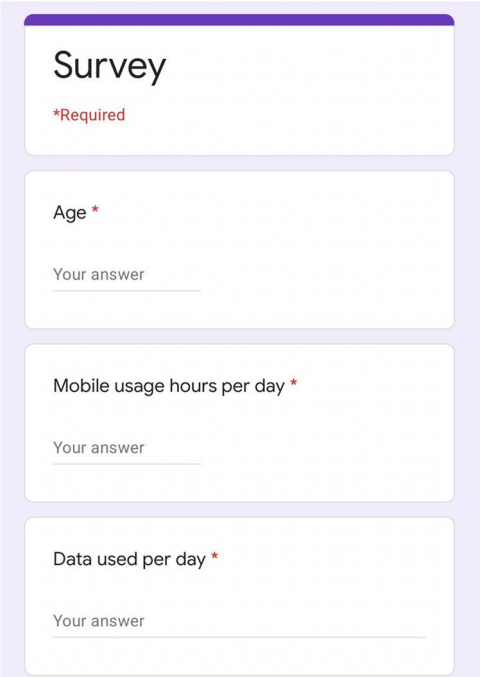
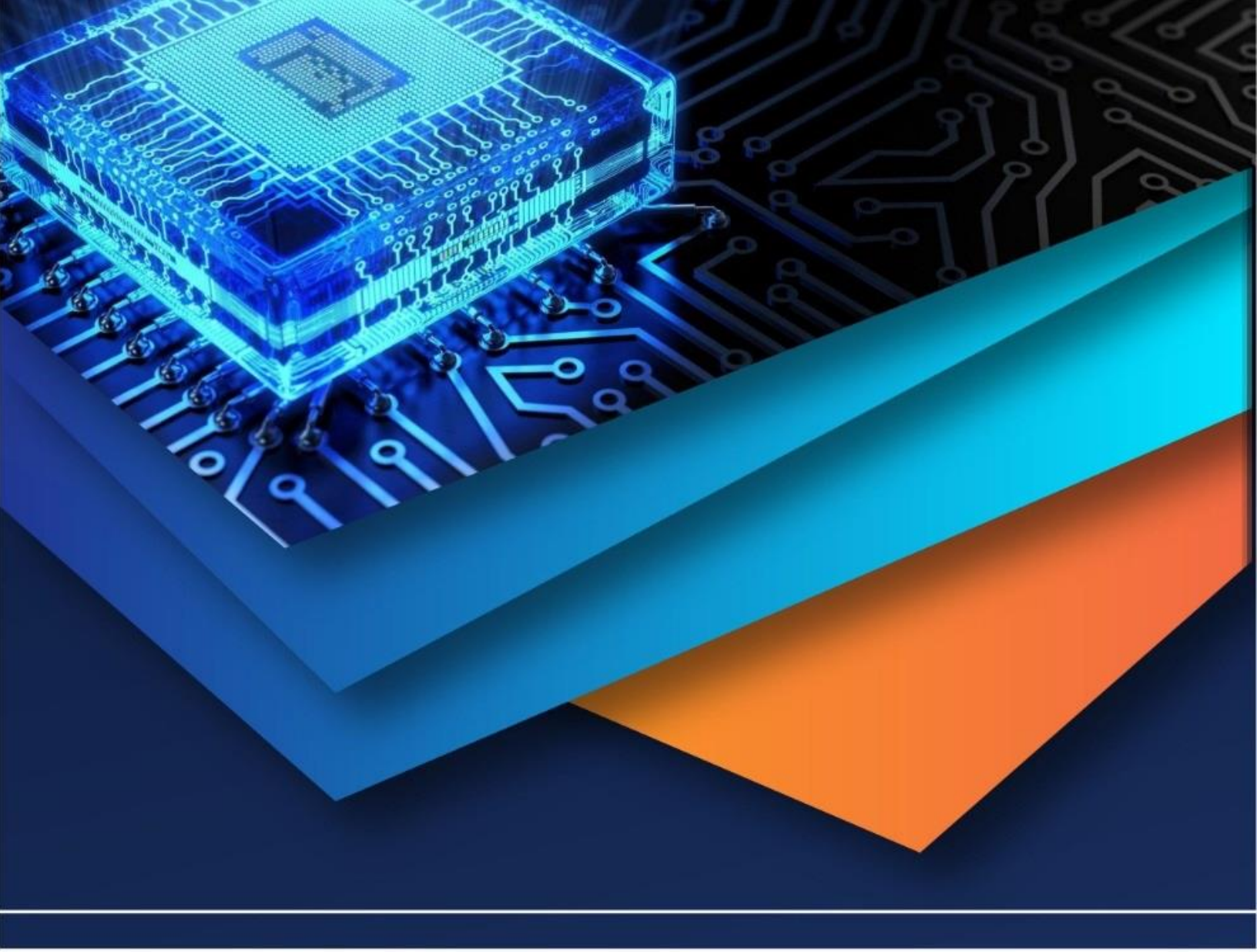


All the data and content is original and is collected through google forms.



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