LOGISTIC REGRESSION RESUT FOR PERSONAL LOAN DATASET:

STEPS:

1. Import pandas package.

2. Loading the dataset.

```
: dataset.head()
```

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	ID	Age	Experience	Income	ZIPCode	Family	CCAvg	Education	Mortgage	PersonalLoan	SecuritiesAccount	CDAccount	Online	CreditCard
0	1	25	1	49	91107	4	1.6	1	0	0	1	0	0	0
1	2	45	19	34	90089	3	1.5	1	0	0	1	0	0	0
2	3	39	15	11	94720	1	1.0	1	0	0	0	0	0	0
3	4	35	9	100	94112	1	2.7	2	0	0	0	0	0	0
4	5	35	8	45	91330	4	1.0	2	0	0	0	0	0	1

3. Assigning dependent variable as “Personal Loan” and all other significant columns as independent variables.

4. Import statistical model and adding constants to dependent variable.

   import statsmodels.api as sm
   x1=sm.add_constant(x)

5. Applying logistic regression formula using “Logit” method and optimizing the result.

   log=sm.Logit(y,x1)
   result=log.fit()

6. Result:

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Logit Regression Results

Dep. Variable:	PersonalLoan	**No. Observations:**	5000
Model:	Logit	**Df Residuals:**	4987
Method:	MLE	**Df Model:**	12
Date:	Fri, 07 Aug 2020	**Pseudo R-squ.:**	0.5938
Time:	21:56:52	**Log-Likelihood:**	-642.17
converged:	True	**LL-Null:**	-1581.0
Covariance Type:	nonrobust	**LLR p-value:**	0.000

	coef	std err	z	P>|z|	[0.025	0.975]
const	-11.8272	4.119	-2.871	0.004	-19.901	-3.753
Age	-0.0535	0.061	-0.873	0.383	-0.174	0.067
Experience	0.0637	0.061	1.045	0.296	-0.056	0.183
Income	0.0546	0.003	20.831	0.000	0.049	0.060
ZIPCode	-3.946e-06	4.08e-05	-0.097	0.923	-8.39e-05	7.6e-05
Family	0.6958	0.074	9.364	0.000	0.550	0.841
CCAvg	0.1240	0.040	3.128	0.002	0.046	0.202
Education	1.7360	0.115	15.085	0.000	1.510	1.962
Mortgage	0.0005	0.001	0.854	0.393	-0.001	0.002
SecuritiesAccount	-0.9371	0.286	-3.278	0.001	-1.497	-0.377
CDAccount	3.8240	0.324	11.791	0.000	3.188	4.460
Online	-0.6751	0.157	-4.298	0.000	-0.983	-0.367
CreditCard	-1.1197	0.205	-5.463	0.000	-1.521	-0.718

As we can observe the p value for the following is less than 0.05 which means they are significant attributes.

1. Income
2. Family
3. CC Average
4. Education
5. Securities Account
6. CD Account
7. Online
8. Credit Card