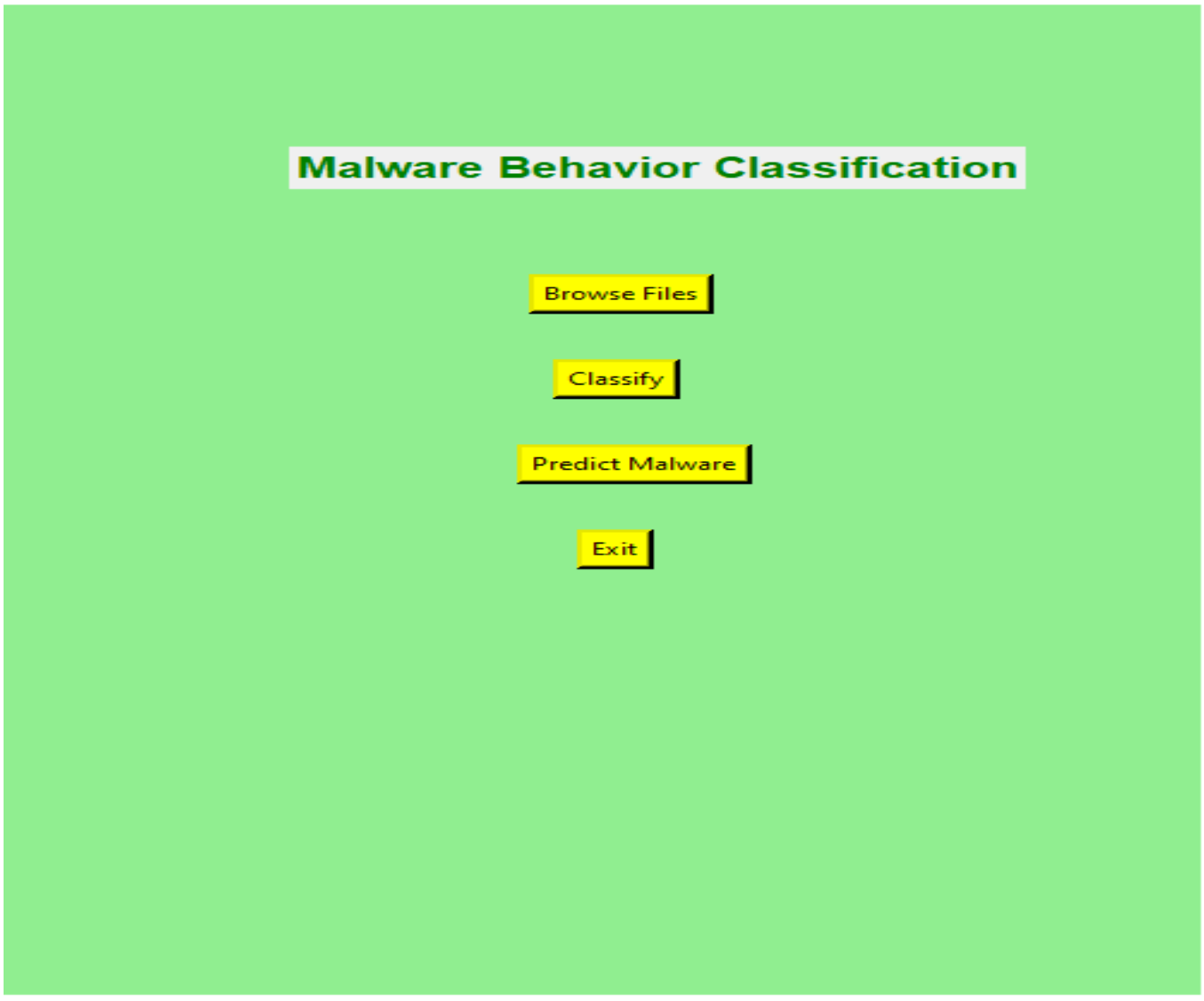
Malware Behavior Classification Using Deep Learning



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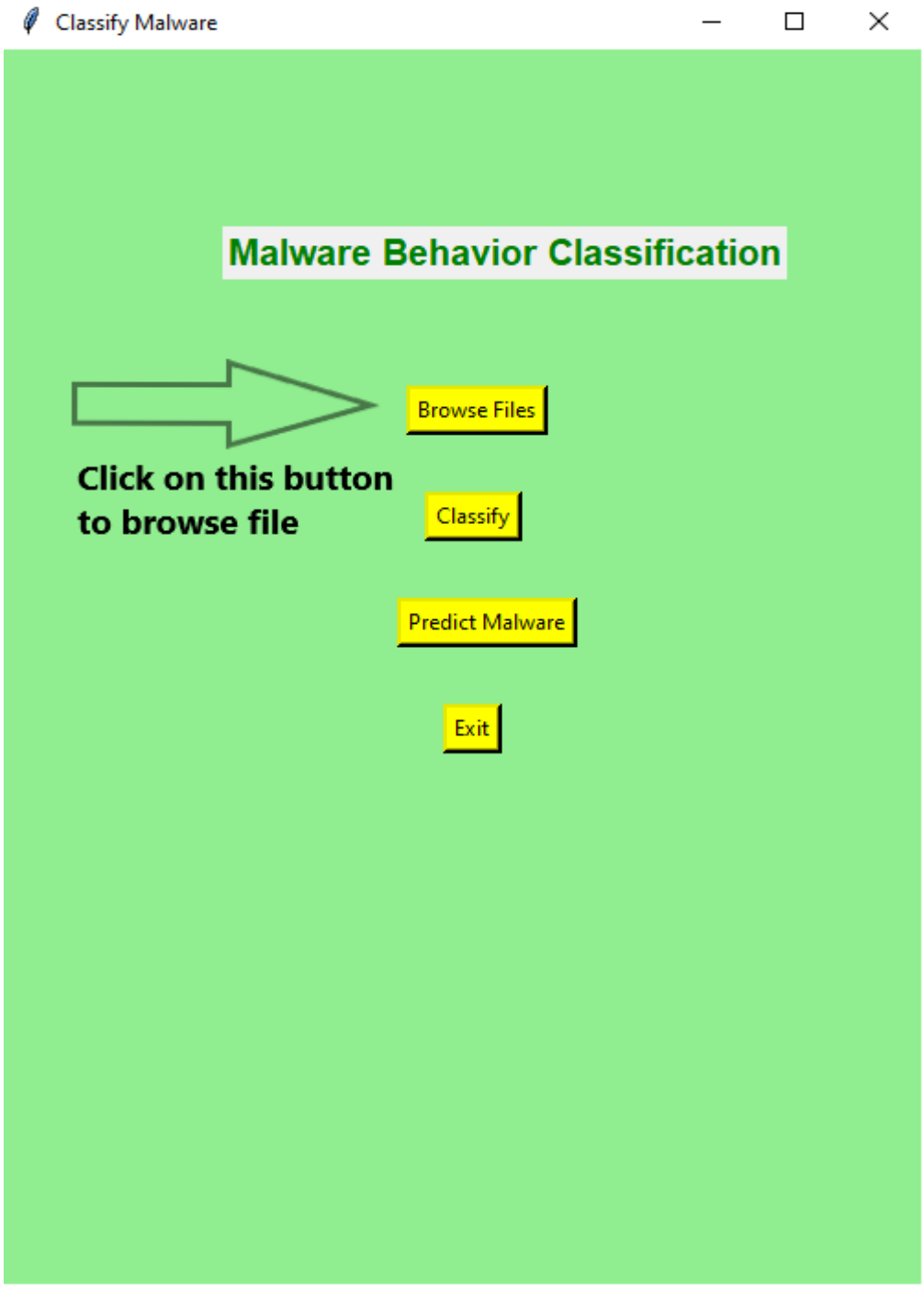
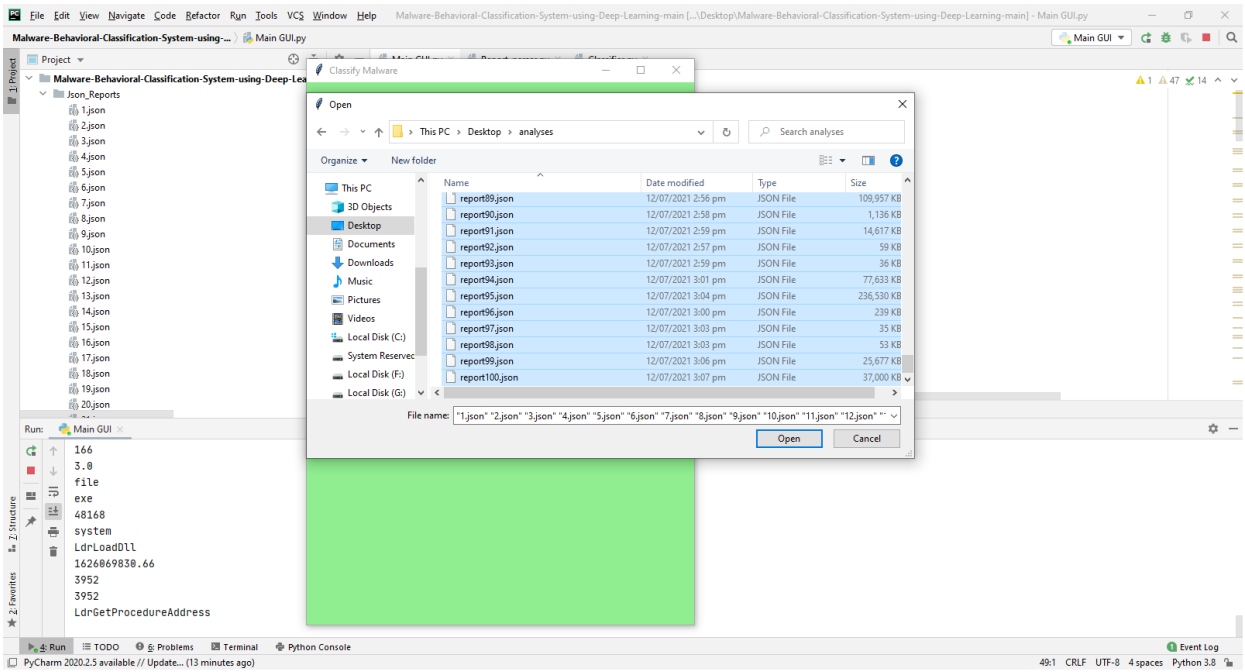
Malware Classification-Select Reports

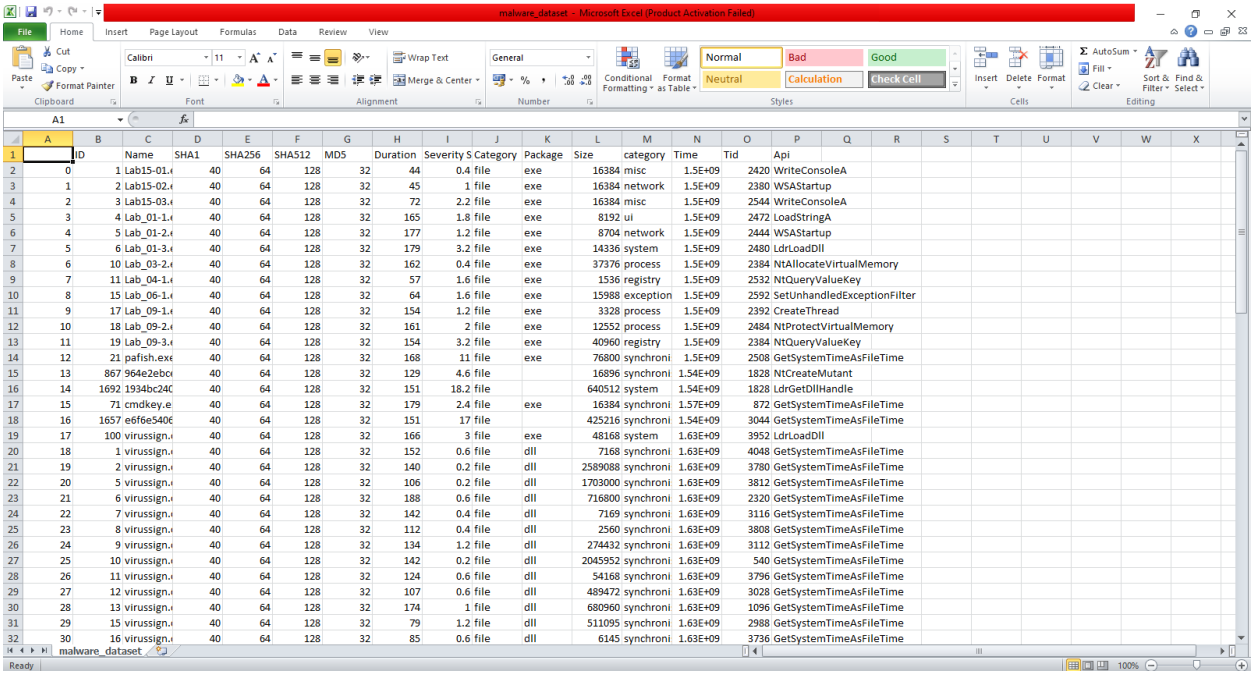
- **The user will select malware analysis report in JSON form.**
- **Based on these JSON files system will extract features.**





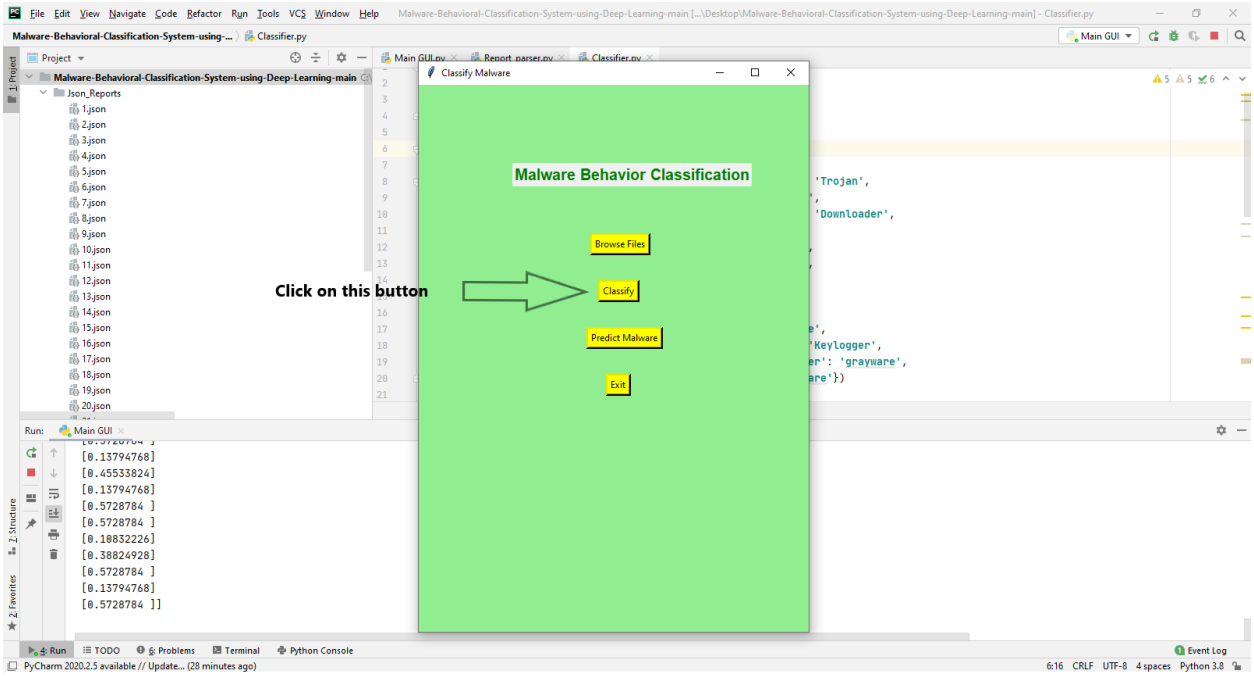
Malware Classification-Extract Features

- **The Extracted features are saved in CSV format show in figure below.**



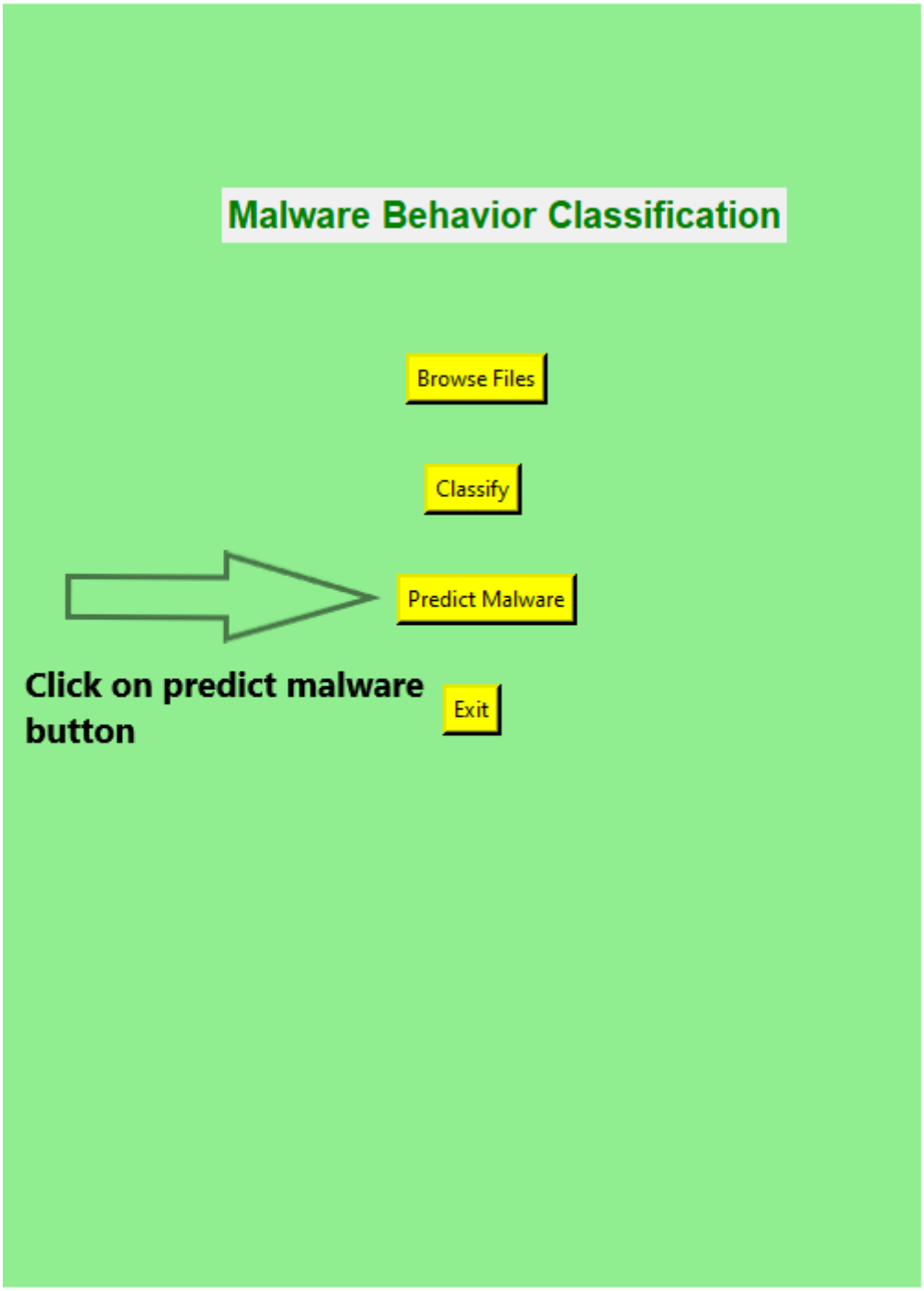
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		ID	Name	SHA1	SHA256	SHA512	MD5	Duration	Severity S	Category	Package	Size	category	Time	Tid	Api
2		0	1	Lab15-01.(	40	64	128	32	44	0.4	file	exe	16384	misc	1.5E+09	2420	WriteConsoleA
3		1	2	Lab15-02.(	40	64	128	32	45	1	file	exe	16384	network	1.5E+09	2380	WSAStartup
4		2	3	Lab15-03.(	40	64	128	32	72	2.2	file	exe	16384	misc	1.5E+09	2544	WriteConsoleA
5		3	4	Lab_01-1.(	40	64	128	32	165	1.8	file	exe	8192	ui	1.5E+09	2472	LoadStringA
6		4	5	Lab_01-2.(	40	64	128	32	177	1.2	file	exe	8704	network	1.5E+09	2444	WSAStartup
7		5	6	Lab_01-3.(	40	64	128	32	179	3.2	file	exe	14336	system	1.5E+09	2480	LdrLoadDll
8		6	10	Lab_03-2.(	40	64	128	32	162	0.4	file	exe	37376	process	1.5E+09	2384	NtAllocateVirtualMemory
9		7	11	Lab_04-1.(	40	64	128	32	57	1.6	file	exe	1536	registry	1.5E+09	2532	NtQueryValueKey
10		8	15	Lab_06-1.(	40	64	128	32	64	1.6	file	exe	15988	exception	1.5E+09	2592	SetUnhandledExceptionFilter
11		9	17	Lab_09-1.(	40	64	128	32	154	1.2	file	exe	3328	process	1.5E+09	2392	CreateThread
12		10	18	Lab_09-2.(	40	64	128	32	161	2	file	exe	12552	process	1.5E+09	2484	NtProtectVirtualMemory
13		11	19	Lab_09-3.(	40	64	128	32	154	3.2	file	exe	40960	registry	1.5E+09	2384	NtQueryValueKey
14		12	21	pafish.exe	40	64	128	32	168	11	file	exe	76800	synchroni	1.5E+09	2508	GetSystemTimeAsFileTime
15		13	867	964e2ebc(	40	64	128	32	129	4.6	file		16896	synchroni	1.54E+09	1828	NtCreateMutant
16		14	1692	1934bc24(	40	64	128	32	151	18.2	file		640512	system	1.54E+09	1828	LdrGetDllHandle
17		15	71	cmdkey.e	40	64	128	32	179	2.4	file	exe	16384	synchroni	1.57E+09	872	GetSystemTimeAsFileTime
18		16	1657	e6f6e540(	40	64	128	32	151	17	file		425216	synchroni	1.54E+09	3044	GetSystemTimeAsFileTime
19		17	100	virussign.(	40	64	128	32	166	3	file	exe	48168	system	1.63E+09	3952	LdrLoadDll
20		18	1	virussign.(	40	64	128	32	152	0.6	file	dll	7168	synchroni	1.63E+09	4048	GetSystemTimeAsFileTime
21		19	2	virussign.(	40	64	128	32	140	0.2	file	dll	2589088	synchroni	1.63E+09	3780	GetSystemTimeAsFileTime
22		20	5	virussign.(	40	64	128	32	106	0.2	file	dll	1703000	synchroni	1.63E+09	3812	GetSystemTimeAsFileTime
23		21	6	virussign.(	40	64	128	32	188	0.6	file	dll	716800	synchroni	1.63E+09	2320	GetSystemTimeAsFileTime
24		22	7	virussign.(	40	64	128	32	142	0.4	file	dll	7169	synchroni	1.63E+09	3116	GetSystemTimeAsFileTime
25		23	8	virussign.(	40	64	128	32	112	0.4	file	dll	2560	synchroni	1.63E+09	3808	GetSystemTimeAsFileTime
26		24	9	virussign.(	40	64	128	32	134	1.2	file	dll	274432	synchroni	1.63E+09	3112	GetSystemTimeAsFileTime
27		25	10	virussign.(	40	64	128	32	142	0.2	file	dll	2045952	synchroni	1.63E+09	540	GetSystemTimeAsFileTime
28		26	11	virussign.(	40	64	128	32	124	0.6	file	dll	54168	synchroni	1.63E+09	3796	GetSystemTimeAsFileTime
29		27	12	virussign.(	40	64	128	32	107	0.6	file	dll	489472	synchroni	1.63E+09	3028	GetSystemTimeAsFileTime
30		28	13	virussign.(	40	64	128	32	174	1	file	dll	680960	synchroni	1.63E+09	1096	GetSystemTimeAsFileTime
31		29	15	virussign.(	40	64	128	32	79	1.2	file	dll	511095	synchroni	1.63E+09	2988	GetSystemTimeAsFileTime
32		30	16	virussign.(	40	64	128	32	85	0.6	file	dll	6145	synchroni	1.63E+09	3736	GetSystemTimeAsFileTime

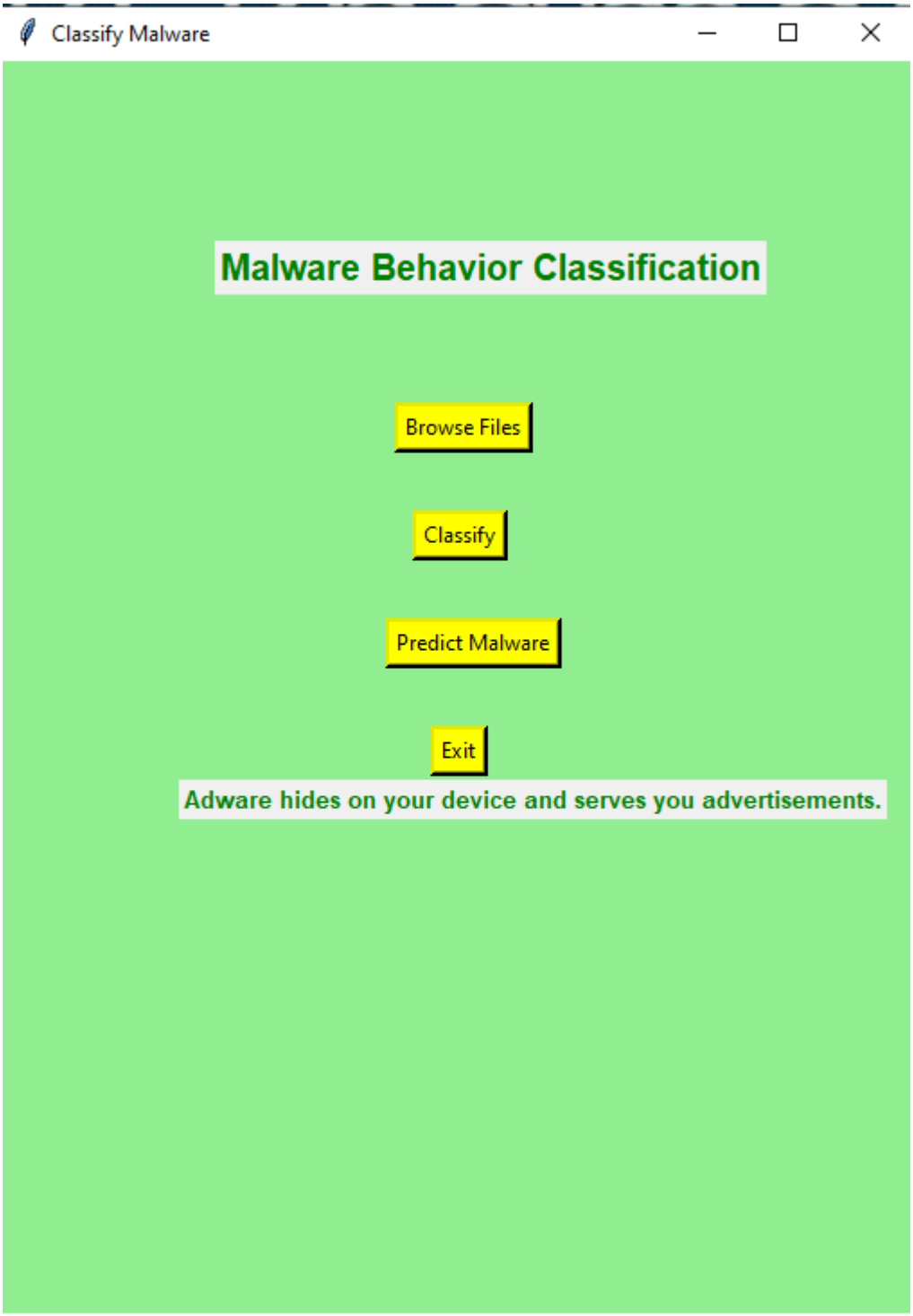
- **Then user will click classify button to perform malware classification.**
- **This classification is performed based on extracted API's.**

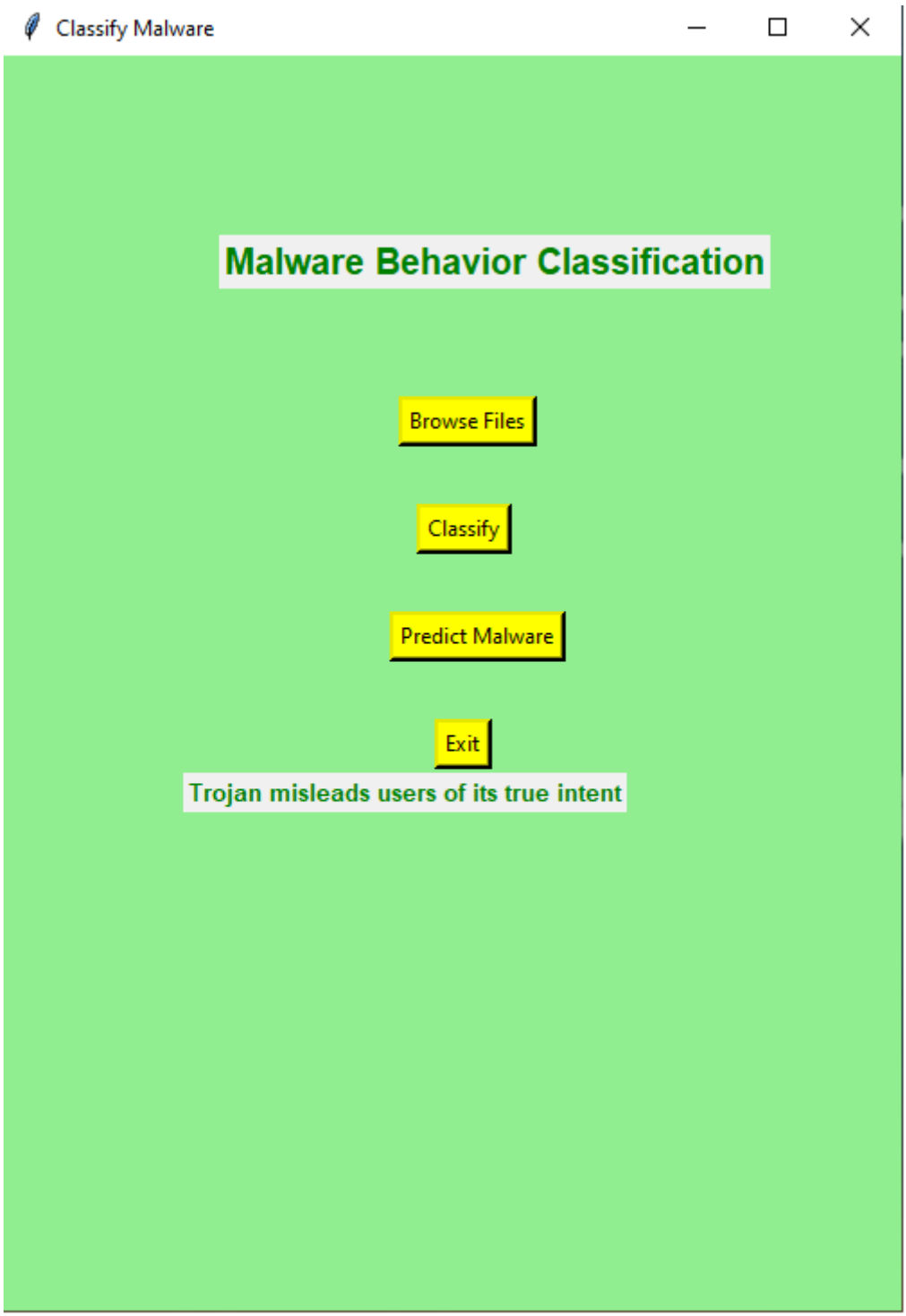


Malware Classification-Malware Prediction

- **After extracting features and performing classification now predict result.**
- **For predicting result trained model is saved in H5 file.**
- **The user clicks on predict malware button to see final output.**




Classify Malware
Malware Behavior Classification
Browse Files
Classify
Predict Malware
Exit
Adware hides on your device and serves you advertisements.


Classify Malware
Malware Behavior Classification
Browse Files
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Predict Malware
Exit
Trojan misleads users of its true intent