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PROC HTTP: Using the Web to Combat Fraud in Auto Finance During a Global Pandemic

Joshua Piers, GM Financial – Commercial Analytics

Most car dealerships do not buy cars outright; they finance them until they sell to a consumer. While the vast majority of dealerships conduct themselves respectably, there are occasional cases of dealership fraud. Typically, auditors are sent to dealerships to monitor vehicle inventory and verify cars are on the lot. In the midst of a global pandemic, this has been difficult to do effectively. The solution? PROC HTTP!

Commercial Lending Services

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Inventory Control

- In person inventory auditing
- Pandemic complications
- Selling Out of Trust

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PROC HTTP

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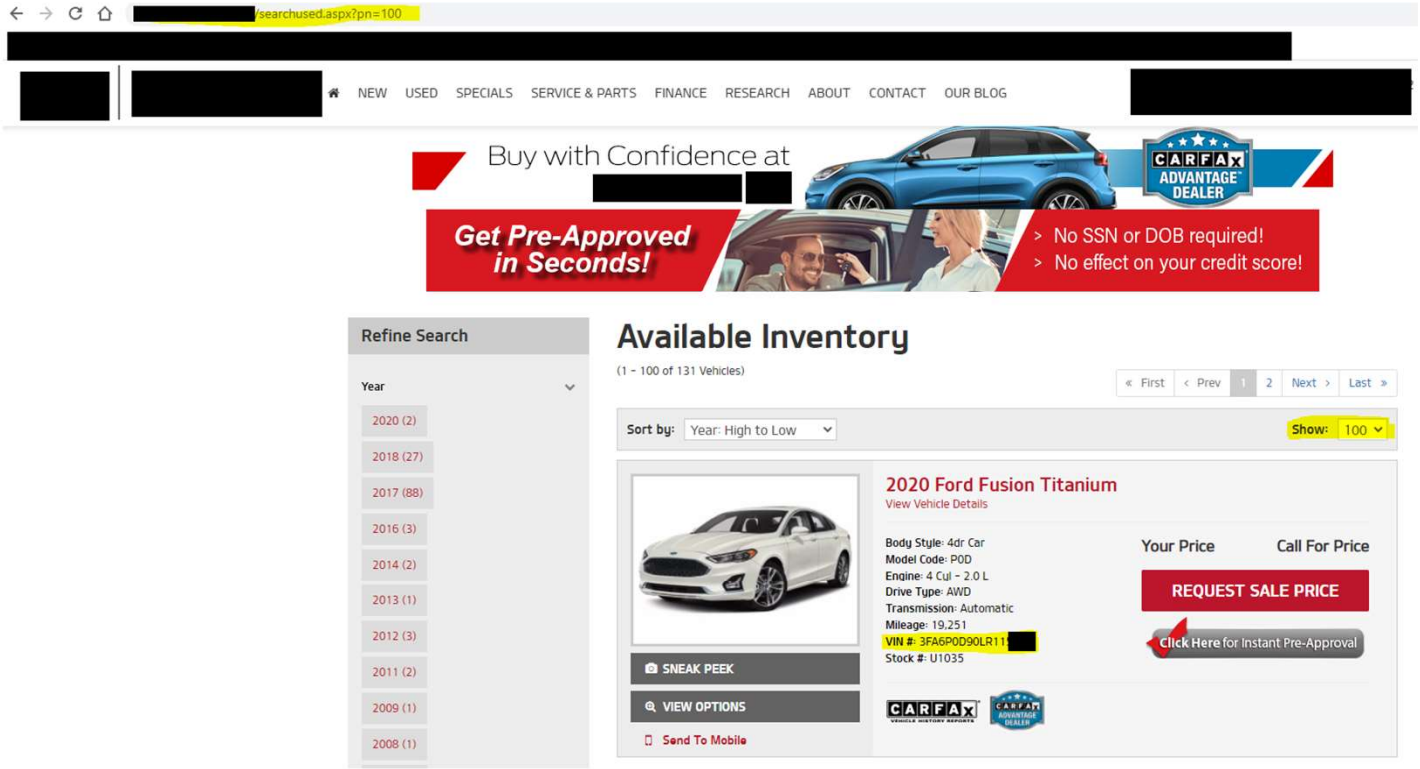

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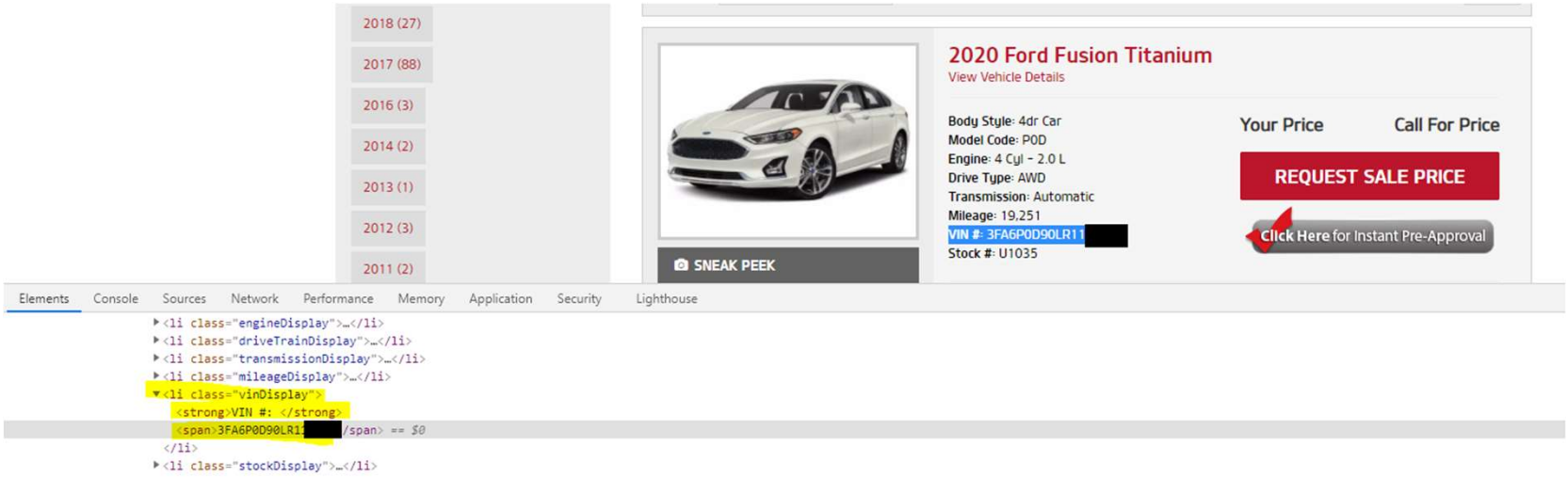

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```
filename resp '/SharePoint/[redacted]_used_inventory.txt';

proc http
  url="https://www.[redacted]com/searchused.aspx?pn=100"
  method="get"
  out=resp
  proxyhost="[redacted]'
  proxyport=9191
  proxyusername='[redacted]
  proxypassword='[redacted]'
 ;run;


filename resp '/SharePoint/[redacted]_used_inventory2.txt';

proc http
  url="https://www.[redacted]com/searchused.aspx?pn=100&pt=2"
  method="get"
  out=resp
  proxyhost="[redacted]'
  proxyport=9191
  proxyusername='[redacted]
  proxypassword='[redacted]
 ;run;
```


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```
/* We must now import the files. Column name and character length may need to be adjusted accordingly. */

DATA WORK.[redacted]_USED_INVENTORY;
    LENGTH
        __DOCTYPE_html_  $ 32767 ;
    LABEL
        __DOCTYPE_html_  = "<!DOCTYPE html>" ;
    FORMAT
        __DOCTYPE_html_  $CHAR32767. ;
    INFORMAT
        __DOCTYPE_html_  $CHAR32767. ;
    INFILE '/SharePoint/[redacted]_used_inventory.txt'
        LRECL=32767
        FIRSTOBS=2
        ENCODING="LATIN1"
        TRUNCOVER ;
    INPUT
        @1      __DOCTYPE_html_  $CHAR32767. ;
RUN;

DATA WORK.[redacted]_used_INVENTORY2;
    LENGTH
        __DOCTYPE_html_  $ 32767 ;
    LABEL
        __DOCTYPE_html_  = "<!DOCTYPE html>" ;
    FORMAT
        __DOCTYPE_html_  $CHAR32767. ;
    INFORMAT
        __DOCTYPE_html_  $CHAR32767. ;
    INFILE '/SharePoint/[redacted]_used_inventory2.txt'
        LRECL=32767
        FIRSTOBS=2
        ENCODING="LATIN1"
        TRUNCOVER ;
    INPUT
        @1      __DOCTYPE_html_  $CHAR32767. ;
RUN;
```


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	__DOCTYPE_html_
1	</head><body><!-- GoogleTagManager PageBodyTop (noscript) --><noscript><iframe...
2	<h1 class="header">
3	Search Inventory
4	</h1>
5	
6	...
7	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
8	
9	<ul class="vehicleImgLinks list-margin-top_5x"><li id="sneakP...
10	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
11	
12	<h2 class="vehicleTitle margin-x"><a cla...
13	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
14	
15	<ul class="vehicleImgLinks list-margin-top_5x"><li id="sneakP...
16	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
17	
18	<h2 class="vehicleTitle margin-x"><a cla...
19	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
20	
21	<ul class="vehicleImgLinks list-margin-top_5x"><li id="sneakP...
22	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
23	
24	<h2 class="vehicleTitle margin-x"><a cla...
25	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
26	
27	<ul class="vehicleImgLinks list-margin-top_5x"><li id="sneakP...
28	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
29	
30	<h2 class="vehicleTitle margin-x"><a cla...
31	<div class="vehiclePhoto stat-thumbnail" data-loc="available inventory" id='vehiclePho...
32	

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```
PROC SQL;
 CREATE TABLE [redacted]_INVENTORY AS SELECT DISTINCT
 "__DOCTYPE_html_"n AS ROUGH_VIN,
 "Used" AS TYPE
 FROM WORK.[redacted]A_USED_INVENTORY
 WHERE "__DOCTYPE_html_"n CONTAINS  ('<li class="vinDisplay"><strong>VIN #: </strong><span>')
 ;RUN;
```


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	ROUGH_VIN	TYPE
1	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:1C4RJFBG3HC8[redacted]	href="http...	Used
2	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:1GKKNXLSXHZ3[redacted]	href="http...	Used
3	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:1GYKNBRS9HZ2[redacted]	href="http...	Used
4	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:1GYS4JKJ3HR21[redacted]	href="https...	Used
5	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:1N4AL3AP6FC13[redacted]	href="https...	Used
6	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:2HGFC2F77HH5[redacted]	href="http...	Used
7	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:2T1BURHE3JC01[redacted]	href="http...	Used
8	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:2T2BZMCA3JC14[redacted]	href="http...	Used
9	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:2T2BZMCA7HC0[redacted]	href="http...	Used
10	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:2T2BZMCA9HC0[redacted]	href="http...	Used
11	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:2T3RFREVXHW6[redacted]	href="htt...	Used
12	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:3C4NJDDB4HT65[redacted]	href="http...	Used
13	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:3FA6P0D90LR11[redacted]	href="https...	Used
14	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:3KPFK4A71JE23[redacted]	href="https...	Used
15	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:3KPFK4A75HE08[redacted]	href="https...	Used
16	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:3N1AB7AP6HY24[redacted]	href="http...	Used
17	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:4JGDA5HB8HA8[redacted]	href="http...	Used
18	<h2 class="vehicleTitle margin-x"><a class="stat-text-link" data-loc="available inventory:4JGDA5HBXHA8[redacted]	href="http...	Used

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```
DATA VIN_LIST;
 LENGTH CLEANUP $38;
 LENGTH VINVENTORY $18;
 SET [redacted]_INVENTORY;

 CLEANUP = prxchange('s/.*?(VIN.*)/$1/', 1, ROUGH_VIN);

 VINVENTORY = STRIP(TRANWRD(CLEANUP,'VIN #: </strong><span>',''));

 ON_WEB = 1;

 run;
```


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	CLEANUP	VINVENTORY	ROUGH_VIN	TYPE	ON_WEB
1	VIN #: 1C4RJFBG3HC[redacted]	1C4RJFBG3HC[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
2	VIN #: 1GKKNXLSXHZ[redacted]	1GKKNXLSXHZ[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
3	VIN #: 1GYKNBRS9HZ[redacted]	1GYKNBRS9HZ[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
4	VIN #: 1GYS4JKJ3HR2[redacted]	1GYS4JKJ3HR2[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
5	VIN #: 1N4AL3AP6FC1[redacted]	1N4AL3AP6FC1[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
6	VIN #: 2HGFC2F77HH[redacted]	2HGFC2F77HH[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
7	VIN #: 2T1BURHE3JC[redacted]	2T1BURHE3JC[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
8	VIN #: 2T2BZMCA3JC[redacted]	2T2BZMCA3JC[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
9	VIN #: 2T2BZMCA7HC[redacted]	2T2BZMCA7HC[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
10	VIN #: 2T2BZMCA9HC[redacted]	2T2BZMCA9HC[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
11	VIN #: 2T3RFREVXHW[redacted]	2T3RFREVXHW[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1
12	VIN #: 3C4NJDDB4HT[redacted]	3C4NJDDB4HT[redacted]	<h2 class="vehicleTitle margin-x"><a cla...	Used	1

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```
filename resp '[redacted]_used_inventory.txt';

proc http
  url="https://www.[redacted]/apis/widget/INVENTORY_LISTING_DEFAULT_AUTO_USED:inventory-data-bus1/getInventory?pageSize=100&pageStart=0"
  method="get"
  out=resp
  proxyhost="[redacted]"
  proxyport=9191
  proxyusername='[redacted]'
  proxypassword='[redacted]'
 ;run;


 libname test JSON fileref=resp;
```


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PAGEINFO_TRAC... ×

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	salePrice	status	stockNumber	transmission	trim	uuid	vin
1	28635.0	live	P1300	8-Speed Automatic	LT	a99286370a0e09b1610db3e3d2a23d0c	1GCGTCEN8
2		live	P1325	6-Speed Manual	LT	04dbf1340a0e09a87e55a3fb15a7f66f	3G1BD6SM0
3	14390.0	live	P1202	6-Speed Automatic	LT	277138140a0d0cc7130ff7d0d78cd337	1G1BE5SM7
4	13445.0	live	P1207	6-Speed Automatic	LT	44d13a6c0a0d0c1465ab1462999dbd6d	1G1BE5SM2
5	17389.0	live	P1279	6-Speed Automatic Electronic with Overdrive	LT	65f19d9a0a0d0cc7242ea51e2d6dd1a9	2GNAXSEV2
6	17135.0	live	P1286	6-Speed Automatic Electronic with Overdrive	LT	77d8ff5d0a0e09a84a97d81dd33bd73e	3GNAXSEV6
7	16620.0	live	P1307	6-Speed Automatic Electronic with Overdrive	LT	cc2df1300a0e09715eaea88dca4369ba	2GNAXSEV6
8	16395.0	live	P1278	6-Speed Automatic Electronic with Overdrive	LT	65f1a7560a0d0cc7242ea51e6830a6b9	3GNAXSEV8
9		live	P1330	6-Speed Automatic	LT	080ba6490a0e09711cbdfa03ab5c0168	1G1ZD5ST4J
10		live	P1120	6-Speed Automatic Electronic with Overdrive	LT	1d21bfca0a0d0cc75e17ce22c4ceca51	1G11G5SXXE
11	29995.0	live	P1265	6-Speed Automatic Electronic with Overdrive	LT	3cc136aa0a0d04fe7bad551bc7afec23	1GCVKREC4
12	29795.0	live	P1175	6-Speed Automatic Electronic with Overdrive	LT	f8659e780a0d0cc750a3f92b49ebfd55	1GCVKRECX
13	29050.0	live	P1060	6-Speed Automatic Electronic with Overdrive	LT	9d2406590a0d0c14500be4b44889a94b	1GCVKREC9
14	27365.0	live	999P	6-Speed Automatic Electronic with Overdrive	LT	5127b4990a0d04fe05d8539ff4e06f33	1GCVKREC5
15	29645.0	live	P1315	6-Speed Automatic Electronic with Overdrive	LT	dbad23070a0e09711cbdfa03c1479b05	1GCVKREC5
16	30915.0	live	P1304	6-Speed Automatic Electronic with Overdrive	LT	b91ca6940a0e09b017bf8ada64e78626	1GCVKREC8
17		live	P1326	6-Speed Automatic Electronic with Overdrive	LT	04dbee620a0e09a87e55a3fb1d60eff0	1GCVKREC1
18	24695.0	live	P1301A	6-Speed Automatic Electronic with Overdrive	LT	f370afbf0a0e09711cbdfa03e0fe857d	1GCVKREC4

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Practical Applications

- Compare advertised VINs to current floorplan loans. If a VIN we have a loan for is not being advertised, we need to inquire about that specific vehicle and confirm its status in inventory.
- Pull advertised VINs from affiliate dealerships and compare to current floorplan loans. Sometimes dealers move vehicles around without our permission.

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Thank you!

Email:
Joshua.Piers@GMFinancial.com