

Error Replacement

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Error coding

Objective: Show possible replacements of strings

Content: A .CSV file named "L3 Sol PI Tags 2016 a"

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```
## # A tibble: 139 x 5
##   sensor                                X__1 X__2          X__3 X__4
##   <chr>                                <chr> <chr>          <chr> <chr>
##  1 SC3_FQI20899                        1    Under Range  <NA>    <NA>
##  2 SC3_AI20849                          1    Under Range  <NA>    <NA>
##  3 SC3_CV20000                         1,2    Storage    Premix  <NA>
##  4 SC3_CV20002                         1,2    Storage    Premix  <NA>
##  5 SC3_CV20117                         1,2    Storage    Premix  <NA>
##  6 SC3_CV20345                         1,2    Storage    Premix  <NA>
##  7 SC3_CV20376                         1,2    Storage    Premix  <NA>
##  8 SC3_CV20616                         1,2,-1 Storage    Premix  I/O Timeo~
##  9 SC3_TIC20004.pv                      0      Over Range  <NA>    <NA>
## 10 SC3_PBL21134                         1      On          Off     <NA>
## 11 SC3_PBL21121                         1      On          <NA>    <NA>
## 12 SC3_PBL21153                         1      On          <NA>    <NA>
## 13 SC3_PBL21157                         1      On          <NA>    <NA>
## 14 SC3_PBL21188                         1      On          <NA>    <NA>
## 15 SC3_PBL21145                         0      Off         On      <NA>
## 16 SC3_PBL21206                         0      Off         On      <NA>
## 17 SC3_PBL21212                         0      Off         On      <NA>
## 18 SC3_PBL24209                         0      Off         On      <NA>
## 19 SC3_PBL21140                         0      Off         <NA>    <NA>
## 20 SC3_PBL21158                         0      Off         <NA>    <NA>
## 21 SC3_PBL21186                         0      Off         <NA>    <NA>
## 22 SC3_PBL21209                         0      Off         <NA>    <NA>
## 23 SC3_PBL21213                         0      Off         <NA>    <NA>
## 24 SC3_PBL24207                         0      Off         <NA>    <NA>
## 25 SC3_600402.mmho                     -1    No more values: <NA>    <NA>
## 26 SC3_600402.mo                       -1    No more values: <NA>    <NA>
## 27 SC3_600_SQC                         -1    No more values: <NA>    <NA>
## 28 SC3_CB_PCT_AL_SOL.PV                 -1    No more values: <NA>    <NA>
## 29 SC3_CV20000.value                    -1    No more values: <NA>    <NA>
## 30 SC3_CV20117.value                    -1    No more values: <NA>    <NA>
## 31 SC3_CV20345.VALUE                    -1    No more values: <NA>    <NA>
## 32 SC3_LAB600205C_AL.pv                 -1    No more values: <NA>    <NA>
## 33 SC3_LAB600205C_AL_TS.pv              -1    No more values: <NA>    <NA>
## 34 SC3_LAB600205C_CL.pv                 -1    No more values: <NA>    <NA>
## 35 SC3_SV44                             -1    No more values: <NA>    <NA>
## 36 SC3_SV45                             -1    No more values: <NA>    <NA>
## 37 SC3_SV46                             -1    No more values: <NA>    <NA>
## 38 SC3_TI20848.LCL                      -1    No more values: <NA>    <NA>
```

##	39	SC3_TI20848.LSL	-1	No more values:	<NA>	<NA>
##	40	SC3_TI20848.UCL	-1	No more values:	<NA>	<NA>
##	41	SC3_TI20848.USL	-1	No more values:	<NA>	<NA>
##	42	`SC3_AAH20842`	1,2	No Alarm	Alarm On	<NA>
##	43	SC3_LAB600205A_AL_TS.pv	-1	-JAN- :	<NA>	<NA>
##	44	SC3_LAB600205B_AL_TS.pv	-1	-JAN- :	<NA>	<NA>
##	45	SC3_TI20113.pv	-1	I/O Timeout	Configu~	<NA>
##	46	SC3_TIC20113.op	-1	I/O Timeout	Configu~	<NA>
##	47	SC3_TIC20113.sp	-1	I/O Timeout	Configu~	<NA>
##	48	SC3_LAB600205_RATIO_SOL_TS~	-1	-Dec- ::	<NA>	<NA>
##	49	SC3_FQI20898	-1	Bad	<NA>	<NA>
##	50	SC3_FQI24221	-1	Bad	<NA>	<NA>
##	51	SC3_TI20005	-1	Bad	<NA>	<NA>
##	52	SC3_TI38017	-1	Bad	<NA>	<NA>
##	53	SC3_LAB600205_RATIO_SOL.pv	<NA>	.	<NA>	<NA>
##	54	SC3_LI21116_LBS	<NA>	.	<NA>	<NA>
##	55	SC3_FQI20897	0,-1	.	Bad	Under Ran~
##	56	SC3_AI20842	<NA>	.	<NA>	<NA>
##	57	SC3_CB_Rate.Sol.Al	<NA>	.	<NA>	<NA>
##	58	SC3_CB_Rate.Sol.Cl	<NA>	.	<NA>	<NA>
##	59	SC3_CB_Rate.Sol.SG	<NA>	.	<NA>	<NA>
##	60	SC3_FI20037	<NA>	.	<NA>	<NA>
##	61	SC3_FIC20007.op	<NA>	.	<NA>	<NA>
##	62	SC3_FIC20014.op	<NA>	.	<NA>	<NA>
##	63	SC3_FIC20116.op	<NA>	.	<NA>	<NA>
##	64	SC3_FIC20344.op	<NA>	.	<NA>	<NA>
##	65	SC3_FIC20375.op	<NA>	.	<NA>	<NA>
##	66	SC3_FIC20615.op	<NA>	.	<NA>	<NA>
##	67	SC3_FIC20849_120F_T	<NA>	.	<NA>	<NA>
##	68	SC3_FIC20849_140F_T	<NA>	.	<NA>	<NA>
##	69	SC3_FIC20849_160F_T	<NA>	.	<NA>	<NA>
##	70	SC3_FIC20849_170F_T	<NA>	.	<NA>	<NA>
##	71	SC3_FIC20849_T	<NA>	.	<NA>	<NA>
##	72	SC3_LAB600205A_AL.pv	<NA>	.	<NA>	<NA>
##	73	SC3_LAB600205A_CL.pv	<NA>	.	<NA>	<NA>
##	74	SC3_LAB600205B_AL.pv	<NA>	.	<NA>	<NA>
##	75	SC3_LAB600205B_CL.pv	<NA>	.	<NA>	<NA>
##	76	SC3_LI21116	<NA>	.	<NA>	<NA>
##	77	SC3_LI21116.gal	<NA>	.	<NA>	<NA>
##	78	SC3_LI21116_GAL	<NA>	.	<NA>	<NA>
##	79	SC3_LI21125	<NA>	.	<NA>	<NA>
##	80	SC3_LI21125.gal	<NA>	.	<NA>	<NA>
##	81	SC3_LI21125_GAL	<NA>	.	<NA>	<NA>
##	82	SC3_LI21125_LBS	<NA>	.	<NA>	<NA>
##	83	SC3_LI21138	<NA>	.	<NA>	<NA>
##	84	SC3_LI21138.gal	<NA>	.	<NA>	<NA>
##	85	SC3_LI21138_GAL	<NA>	.	<NA>	<NA>
##	86	SC3_LI21138_LBS	<NA>	.	<NA>	<NA>
##	87	SC3_LI21149	<NA>	.	<NA>	<NA>
##	88	SC3_LI21149.gal	<NA>	.	<NA>	<NA>
##	89	SC3_LI21149_GAL	<NA>	.	<NA>	<NA>
##	90	SC3_LI21149_LBS	<NA>	.	<NA>	<NA>
##	91	SC3_LI21202	<NA>	.	<NA>	<NA>
##	92	SC3_LI24212	<NA>	.	<NA>	<NA>

## 93	SC3_PBL21121_T	<NA>	.	<NA>	<NA>
## 94	SC3_PBL21134_T	<NA>	.	<NA>	<NA>
## 95	SC3_PBL21140_T	<NA>	.	<NA>	<NA>
## 96	SC3_PBL21145_T	<NA>	.	<NA>	<NA>
## 97	SC3_PBL21153_T	<NA>	.	<NA>	<NA>
## 98	SC3_PBL21157_T	<NA>	.	<NA>	<NA>
## 99	SC3_PBL21158_T	<NA>	.	<NA>	<NA>
## 100	SC3_PBL21186_T	<NA>	.	<NA>	<NA>
## 101	SC3_PBL21188_T	<NA>	.	<NA>	<NA>
## 102	SC3_PBL21206_T	<NA>	.	<NA>	<NA>
## 103	SC3_PBL21209_T	<NA>	.	<NA>	<NA>
## 104	SC3_PBL21212_T	<NA>	.	<NA>	<NA>
## 105	SC3_PBL21213_T	<NA>	.	<NA>	<NA>
## 106	SC3_PBL24207_T	<NA>	.	<NA>	<NA>
## 107	SC3_PBL24209_T	<NA>	.	<NA>	<NA>
## 108	SC3_PI38098	<NA>	.	<NA>	<NA>
## 109	SC3_PI38099	<NA>	.	<NA>	<NA>
## 110	SC3_PIC38076.pv	<NA>	.	<NA>	<NA>
## 111	SC3_PIC38076.sp	<NA>	.	<NA>	<NA>
## 112	SC3_TI20012	<NA>	.	<NA>	<NA>
## 113	SC3_TI20114	<NA>	.	<NA>	<NA>
## 114	SC3_TI20373	<NA>	.	<NA>	<NA>
## 115	SC3_TI20613	<NA>	.	<NA>	<NA>
## 116	SC3_TI21115	<NA>	.	<NA>	<NA>
## 117	SC3_TI21124	<NA>	.	<NA>	<NA>
## 118	SC3_TI21137	<NA>	.	<NA>	<NA>
## 119	SC3_TIC20011.op	<NA>	.	<NA>	<NA>
## 120	SC3_TIC20011.pv	<NA>	.	<NA>	<NA>
## 121	SC3_TIC20011.sp	<NA>	.	<NA>	<NA>
## 122	SC3_TIC20341.op	<NA>	.	<NA>	<NA>
## 123	SC3_TIC20341.pv	<NA>	.	<NA>	<NA>
## 124	SC3_TIC20341.sp	<NA>	.	<NA>	<NA>
## 125	SC3_TIC20372.pv	<NA>	.	<NA>	<NA>
## 126	SC3_TIC20372.sp	<NA>	.	<NA>	<NA>
## 127	SC3_TIC20522.pv	<NA>	.	<NA>	<NA>
## 128	SC3_TIC20522.sp	<NA>	.	<NA>	<NA>
## 129	SC3_TIC20612.op	<NA>	.	<NA>	<NA>
## 130	SC3_TIC20612.pv	<NA>	.	<NA>	<NA>
## 131	SC3_TIC20612.sp	<NA>	.	<NA>	<NA>
## 132	SC3_CB_Rate.Blend	<NA>	<NA>	<NA>	<NA>
## 133	SC3_CQI20793A	<NA>	<NA>	<NA>	<NA>
## 134	SC3_FQI38204.TV	<NA>	<NA>	<NA>	<NA>
## 135	SC3_PIC38076.op	<NA>	<NA>	<NA>	<NA>
## 136	SC3_TIC20004.op	<NA>	<NA>	<NA>	<NA>
## 137	SC3_TIC20004.sp	<NA>	<NA>	<NA>	<NA>
## 138	SC3_TIC20372.op	<NA>	<NA>	<NA>	<NA>
## 139	SC3_TIC20522.op	<NA>	<NA>	<NA>	<NA>

Sensor wise String types

First column shows sensor names Second column has arbitrary replacement values Remaining columns are the possible strings found in each sensor

From analysis negative values are not present in the dataset and COULD be used as replacements. From dataframe above it seems possible to replace most of the strings with 1/0 or with running numbers.