```sas
/*

                           SIMPLYFYING SAS DATES PROBLEM

Learning Source Reference: Youtube
13 April 2022

*/

/*
SAS does not understand the dates which we feed(input) and requires us to help it understand-- Done using INFORMATS
SAS does not understand how to display dates(output) and requires the user to explicitly define the format in which we wa
/*


_____  */

data test;
aaj= today();
run;
/* O/P -- 22748 */
/* Inference: SAS did not understand how to display the output stored in variable aaj and hence showed 22748 */

data test;
format aaj date9.;
aaj=today();
run;
/* O/P -- 13APR2022 as expected */


/* _____  */

/* Functions to extract useful parts of dates */
data test;
format aaj yest tomorrow date9.;
aaj=today();
yest= today()-1;

day=day(aaj);
month=month(aaj);
year=year(aaj);
QTR=qtr(aaj);
weekday= weekday(aaj); /* Sunday is set to 1 by default */

tomorrow=mdy(04,14,2022); /* Creates date by the input of month, date and year */
run;

/* _____  */

/* We input the dates manually */

data test;
input dat;
cards;
13/04/2022
;
run;

/* O/P- Dot */
/* Inference: SAS does not understand the datatype of the dat variable because of the presence of both numerics and speci
/* Solution: Help SAS understand how to read the data using informat */

data test;
input dat;
informat dat ddmmyy10.;
cards;
13/04/2022
;
run;

/* O/P- 22748 (no of days from Jan 1 1960) */
/* Inference: SAS now understands how to read the date but does not know how to display it in the O/P. */
/* Solution: Use format statement to display the result in the desired format. */
/* Note: The informat statement has to be same as the way you are describing the dat variable. */
/* In the output variable you can display the date the way you want and can give any format. */

data test;
input dat;
informat dat ddmmyy10.;
format dat date9.;
cards;
```

```
13/04/2022
;
run;

/* O/P -- 13APR2022 as expected */

/* Note: Informat statement need not be sepearately defined in a new line it can be done while defineing the dat variable

data test;
input dat ddmmyy10.;
format dat date9.;
cards;
13/04/2022
;
run;
/* O/P -- 13APR2022 as expected */
/* _____ */

            /* Difference Between Dates-- INTCK FUNCTION */

/* Difference between dates is found using INTCK function. Remember hack: CK Nayudu first Indian cricket captain made the

/* SYNTAX : INTCK(interval, startdate, enddate, <method-optional>) */


/* Lets calculate no of days left in my birthday this year. */

data test;
format aaj bday date9.;
aaj=today();
bday="08Sep2022"d ; /*Observe the way date is assigned to a variable*/

days_left= intck('day',aaj,bday);
months_left= intck('month',aaj,bday);

run;

/* O/P- 148 days, 5 months (excludes the current month) */

/* Methods argument in intck is optional. It can take two values: */
/* D- discrete-- includes the interval boundary */
/* C- continuous -- excludes the interval boundary */
/* If we dont put any method SAS by default choses the continuous method-- excludes the interval boundary */

data test;
format aaj bday date9.;
aaj=today();
bday="08Sep2022"d ; /*Observe the way date is assigned to a variable*/

days_left= intck('day',aaj,bday);
months_left_c= intck('month',aaj,bday,'c');
months_left_d= intck('month',aaj,bday,'d');

run;
/* O/P---- months_left_c-4, months_left_d - 5 */

/* _____ */

            /* Incrementing Dates-- INTNX FUNCTION */

/* Incrementing dates by the given time interval can be done using Intnx function. Remember NX- Nexa carshowroom- moves f

/* SYNTAX: INTNX('interval', startfrom, increment,<'alignment') */

/* Lets add 365 days to this years birthday and create a variable for next years birthday */

data test;
format bday next_bday next_bday2  date9.;
bday="08Sep2022"d ;
next_bday=intnx('day',bday,365);
next_bday2=intnx('month',bday,12);
run;
/* O/P-- 08SEP2023 */


/* Alignment argument is an optional argument which takes values: */
/* B-- Beginning -- returned date is aligned to the beginning of the interval */
/* M-- Middle-- returned date is aligned to the middle of the interval */
/* E-- End-- returned date is aligned to the end of the interval */
/* S--- Sameday-- returned date is aligned to the same day of the interval */

data test;
```

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format bday next_bday next_bday2 next_bday3 date9.;
bday="08Sep2022"d ;
next_bday=intnx('month',bday,12,'b');
next_bday2=intnx('month',bday,12,'e');
next_bday3=intnx('month',bday,12,'m');
run;
/* O/P - 01SEP2023,30SEP2023,15SEP2023 */

/* _____ */

/* DATE FORMAT USING PUT FUNCTION */

/* Instead of writing a format statement you can define SAS date formats using put statement which helps SAS to convert i
data test;
bday="08Sep2022"d ;
var1=put(bday,date9.);
var2=put(bday,ddmmyy10.);
var3=put(bday, ddmmyyb10.);
var4=put(bday, ddmmyyc10.);
run;

/* _____ */

/* SUBSETTING DATA BASED ON DATES */

/* Lets create a dataset. */

data test1;
input Qty sold_dt;
informat sold_dt date9.;
format sold_dt date9.;
cards;
65 13APR2023
85 14APR2023
42 15APR2023
68 16APR2023
75 17APR2023
54 18APR2023
62 19APR2023
57 20APR2023
98 21APR2023
;
run;

/* Subset the data for quantity sold after 17Apr2023 */
data test2;
set test1;
where sold_dt>'17APR2023'd;
run;
/* _____ */

                    /*DATEPART FUNCTION */

/* Generally in databases the date variable is stored as datetime function for example sld_date='13apr22:8:45'dt; */
/* To extract the date part out of this function which has a combination of date and time function we use datepart */

data test;

sld_date='13apr22:8:45'd;
var_dat=datepart(sld_date);
var_time=timepart(sld_date);

format var_dat date9. var_time hhmm.;

run;
```