FUN WITH CALENDAR: 06

Alright guys so in the previous videos we had seen some functionality this library will offer that will be helpful for us in achieving our task so that we will be doing two tasks in this joy. So let's go ahead with the tasks one, task one is given a date, can you tell what day of the week it falls on? Is it a Monday or Tuesday or a Wednesday or whatever what is the day of the week that particular day falls on? Input is a date output is you have to tell what day it falls on. That is what we want to program we want to model it. So what is the library that we will be using, we had seen in the pre requisites as well we have the library calendar and we have a functionality week day that actually returns you the day on which the particular date falls so before this we need to see how to get the day because humans have different format of inputting dates i can say three Jan two thousand seventeen three one two thousand seventeen in excel it is one three two thousand seventeen there are different formats so how to take the input format that is something we need to agree upon as well as there are some more things so let us see that ok. So this is the procedure first thing is you need to input a valid date so what do i mean by a valid date? If i say forty seven two thousand eighteen it's an invalid date, none of the months have the date called forty probably i wanted to type four and it's a typo it had become forty in such cases we have to handle it so that has to be taken care of as well as if i say thirty one nine two thousand seventeen, is it a valid date? No because nine is the month September it has use thirty days so few months have thirty days few have thirty one days as well as any month the date will never exceed thirty one that thing has to be taken care of also just not just month place a role here year place a role here if it is a leap year there are three sixty six days in that year otherwise you have three sixty five days so that extra days is accounted in the month of February so if it is a leap year February may have twenty nine days and otherwise you will have twenty eight days so you cannot give a bound that thirty or thirty one if i say thirty February that's not a valid date right so i get reminded of comedy that comes person says that i will repay my loan by thirtieth of February something like that such things if a person is giving such a input to your computer if your program is given such an input your program must be robot enough handle all these things so will have to check if the inputted date is the valid date otherwise you need to keep getting the inputs as long as he doesn't give the valid date don't stop getting input o say that it is an invalid same keep getting inputs, if you get a valid date stop and use the built in functionality and get the week day also another problem that we had seen it returns the index of the day zero to six it's difficult n human minds to say what day this is we are comfortable with Monday Tuesday representation not with zero to six representation. So we need to do some inter conversion here as well even that as to be taken care of. So we will see one by one what is the thing So first we will see about the valid dates, will see ok so as i had said this month of February is a special month if it is a leap year you have twenty nine days else you have twenty eight days else and what about the other months? Ok so the month of February is a special month you have to decide how many number of days are present based on the year if it is a leap year or not a leap year right so how would you determine if it is a leap year or not a leap year. I hope you are familiar with this procedure you had seen in your birthday paradox joy so still let us revisit it. How would you detect a leap year? If it is a century year, what do i mean by century year? It is a beginning of a century beginning of a new century something like that how

would you detect in simple words it ends with two zeros. The year sixteen hundred, seventeen hundred, eighteen hundred two thousand all these are century years. If it is a century year first thing you have to check is it is a century year, if it is a century year you should check for divisibility by four hundred, if it is divisible by four hundred then you can say that's a leap year. For example nineteen hundred it's a century year so nineteen hundred and four hundred check the divisibility, nineteen hundred is not exactly divisible by four hundred hence nineteen hundred is not a leap year where as if you say two thousand it's a century year so check for four hundred divisibility two thousand is exactly divisible by four hundred hence two thousand is a leap year, if it is not a leap year you should check divisibility by four so basically given a year the procedure is you need to check if it is a century year or not a century year. If it is a century year check for divisibility by four hundred otherwise check for divisibility by four if the divisibility is not satisfied say that it is not a leap year if it is satisfied say leap year. This is a procedure by which we get to know a year is a leap year or not. So this is about February and it is the number of days is determined if it is a leap year or not based on this factor this is determined so we have seen how to determine a leap year or not so the other months other than February what is the pattern? Somehow thirty days somehow thirty one days will see that alright other months we can divide into two halves so months till July if you would see the months January, march, may, July all these months have thirty one days they are odd numbered months January is one march is three may is five they have thirty one days, the other months February we have considered earlier so consider February here consider April june the other two months these months are even number April is number four june is month number six the month these months are even numbered months they have thirty days this is the pattern that is observed till july so from august there is a change in pattern. What is it? It's simply a reversal what do i mean by that? That is this so from august the odd numbered months September November ninth month and eleventh month November have thirty days and the even numbered months from august, august is eight right so from august eight October ten and December twelve these months have thirty one days so this is the pattern from august so there is a change from august till july the pattern is reversed odd numbered months have thirty one days and even numbered months had as you could see here till july this is a pattern odd numbered months have thirty one days and even numbered months have thirty days. From august there is a reversal as you could see odd numbered months have thirty days and even numbered months have thirty one days. So based on these factors we should check if a given date is a valid date or not. So based on this factors we have to check it and use the library functions and display what is the date. What is a day what is the day of the week given a date that's what we will be doing in the programming, we will see that in the next part.