

# Making Decisions in Turing

For our programs to do anything useful, we need to start making decisions.

Suppose we want to decide, “Is the user old enough to vote?”

# Example – Voting Age

## 1. design using comments

As programs get more complicated, start by using comments to build a framework to solve the problem:

% ask the user's age

% if they are 18 or older, they can vote

% if they are under 18, they cannot vote

# Example – Voting Age

## 2. Add easy code

```
var age : int    % declare a variable for age
```

```
% ask the user's age
```

```
put "How old are you? "
```

```
get age
```

```
% if they are 18 or older, they can vote
```

```
put "You can vote!"
```

```
% if they are under 18, they cannot vote
```

```
put "You are not old enough to vote."
```

# Example – Voting Age

## 3. Add new code

```
var age : int      % declare a variable for age
```

```
% ask the user's age  
put "How old are you? "  
get age
```

```
% if they are 18 or older, they can vote  
if (age >= 18) then  
    put "You can vote!"  
end if
```

```
% if they are under 18, they cannot vote  
if (age < 18) then  
    put "You are not old enough to vote."  
end if
```

# Example – Voting Age

## 3b. Add new code – another option

```
var age : int      % declare a variable for age
```

```
% ask the user's age  
put "How old are you? "  
get age
```

```
% if they are 18 or older, they can vote  
if (age >= 18) then  
    put "You can vote!"  
else % if they are under 18, they cannot vote  
    put "You are not old enough to vote."  
end if
```

# If-Then-Else

if (*condition*) then  
    *statements if condition is true*  
else ⇐ the “else” is optional!  
    *statements if condition is false*  
end if

<	less than	<=	less than or equal to
>	greater than	>=	greater than or equal to
=	equal to	not=	not equal to

# Exercises #2 – Selection using If-Then-Else

1. Ask the user 3 math problems and (a) tell them they are right, or (b) show them the correct answer. (exercise2a.t)
2. Ask the user their name. Give a different message depending on whether they enter your name or another name. (exercise2b.t)
3. Ask the user where they are from (e.g., province or country). Depending on their answer, give a bit of trivia on the region. Otherwise, admit you don't know anything about the area. (exercise2c.t)
4. Finished? Create your own problem and solution using selection. Use comments to document your problem at the top of the file, and then save it as exercise 2d.t (you might also look at the “if” statement in Turing help to take it further)