# SPECIAL VARIABLES: FLAGS AND ACCUMULATORS

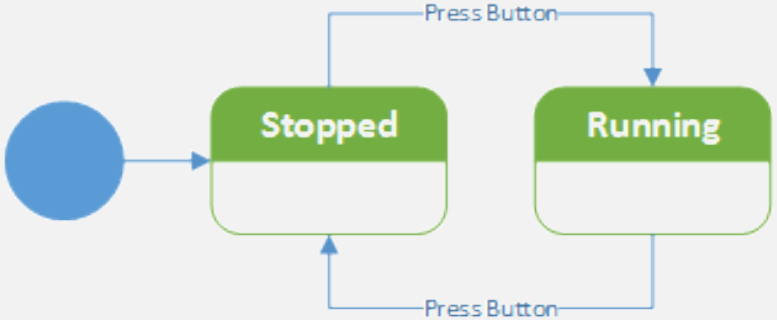
Variables used for specific tasks

Delroy A. Brinkerhoff

# THE PROBLEM

## STOPWATCH


## STATE DIAGRAM



# FLAGS

## STATE DIAGRAM

- A flag is a variable that "remembers" what the program is doing
- Flags are set at one place in a program and tested at a different place time
- What program does depends on the flag

## EXAMPLE

```
bool  stopped = true;
          . . .
if (stopped)
{
    // code to start the watch
    stopped = false;
}
else
{
    // code to stop the watch
    stopped = true;
}
```

# ACCUMULATE

- "To gather or pile up especially little by little."
- Accumulator variables
  - Must be initialized (usually to 0)
  - Are used in loops to "gather" data
- For example, measuring flour into a bowl
  - Initially the bowl must be empty
  - Accumulates all the needed flour

# ACCUMULATOR EXAMPLES

```
int n;
int count = 0;
        ...
while (...)
{
     cin >> n;
     count++;
}
```

```
double sum = 0;
        ...
while (...)
{
     double   score;
     cin >> score;
     sum += score;
}
```

```
double balance = 0;
        ...
while (...)
{
     if (...)
        balance += amount;
     else
        balance -= amount;
}
```