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| Program Flow / Control /\* Each Arduino Sketch must contain the following two functions \*/  void setup()  {  // runs only once.  }  void loop()  {  // runs repeatedly.  }  delay(*time\_millis*); // pauses program in ms  delayMicroseconds(*time\_micros*); //pause s Basic Logic **Simple if()-else**  if(*condition*)  {  //true condition code here  }  else  {  //false statement code here  }  -----------------  **Compound if()-else if()-else**  if(*condition1*)  {  //true condition1 code here  }  else if(*condition2*)  {  //true condition2 code here  }  else  {  //false statement code here  } | Pin Configuration - INPUT vs OUTPUT pinMode(*pin*, INPUT/OUTPUT/INPUT\_PULLUP); OUTPUT Control digitalWrite(*pin*, *val*); // val: HIGH or LOW  analogWrite(*pin*, *val*); // val: 0 to 255.  tone(*pin*, *freq*); // freq in Hertz  tone(*pin*, *freq*, *duration*); //duration in ms  noTone(*pin*); // stop tone on pin Reading INPUTs buttonPress = digitalRead(*pin*); // any pin  sensorVal = analogRead(*pin*); // A0-A5 pins Communication **Serial**.begin(*baudrate*);  **Serial**.print(“”); // print data out  **Serial**.println(“”); // print with new line  x = **Serial**.read(); // reads a single byte  // data  x = **Serial**.parseInt(); // read the next  // available integer Looping while(*condition*)  {  }  for(*init*; *condition*; *update variable*)  {  } Comments/Debug /\* this is a multiline comment. nothing between here will be run or executed \*/  // this is a single  // line comment | Data \ Variable Types const (indicates a constant data type)  void (null data type)  int (integer -32,768 to 32,767)  float (floating point / decimal numbers)  arrayName[] – list of elements (any type)  String (array of characters) System constants / functions HIGH / LOW  OUTPUT / INPUT / INPUT\_PULLUP  millis(); //returns # of milliseconds  micros(); //returns # of microseconds Math Operators = // assignment  + // addition  - // subtraction  \* // multiplication  / // division  % // modulus Logic Operators == // is equal to?  != // is not equal to?  < // less than  > // greater than  <= // less than or equal  >= // greater than or equal  && // compound AND  || // compound OR  ! // NOT (inverse) Libraries #include <**libraryName**.h>  **libraryName** objectName;  // read library documentation for usage. |

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