

Pixel Programming: Packet 1

Intermediate Commands, Part 1

We've got some new ones, building on what you've seen before.

1. `ask user to set [VARIABLE]`

Sometimes a programmer sets up a value for a variable in the middle of a program, like `COLOR` was set in your first few Pixel Programs. At other times, a programmer needs to have the program “ask” the user for a variable's value; that's what's going on here.

Whenever you see one of these, that means the user (in this case you, or one of your friends) can set the variable to whatever they want. So, upon encountering

```
ask user to set TIME
```

you go to the variables section, and write in whatever value you want for `TIME`. Don't forget to erase any value that was there before!

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We've got some new ones, building on what you've seen before.

2. `repeat [NUMBER] times`

Remember all those repeated pixel programming commands? This'll help you read them and write them much more easily. Statements like `repeat`, along with the code “inside” it, are called loops, because the computer loops back and executes code repeatedly.

Whenever you see `repeat...`, it'll be followed by a big square bracket. You go through and follow all the instructions inside the bracket—then repeat them up to a total of `NUMBER` times.

For example, this block of code on the left is equivalent to the block of code on the right

<code>repeat 3 times</code>	<code>MARK</code>
<code>----</code>	<code>move RIGHT</code>
<code> move RIGHT</code>	<code>MARK</code>
<code> MARK</code>	<code>move RIGHT</code>
<code>--- move RIGHT</code>	<code>MARK</code>

Loops are more than convenient; they're indispensable when some code has to repeat dozens of times, or hundreds of times, or even more.

Note that `NUMBER` can be a variable! In that case, you need to go and check what the value of the variable is before repeating the code in the loop.

Now you're ready to tackle some more interesting Pixel Programs! Get to it!

Pixel Programming: Packet 1

Pixel Programming Codename CHARLIE

=====

current pixel

list of variables:

COLOR == _____

NUMZIGS == _____

=====

ask user to set NUMZIGS

Set COLOR to BLACK

Repeat NUMZIGS times

```
| move UP
| move RIGHT
| MARK
| move UP
| move RIGHT
| MARK
|
| move DOWN
| move RIGHT
| MARK
| move DOWN
| move RIGHT
| MARK
```

Pixel Programming: Packet 1

Pixel Programming Codename KLEENE STAR

=====

current pixel

list of variables:

COLOR == _____

SIZE == _____

=====

set COLOR to GRAY

ask user to set SIZE

```

MARK                                     repeat SIZE times                 repeat SIZE times
-----                                     -----                             -----
repeat SIZE times                       | move LEFT                       | move LEFT
-----                                   | move UP                         | move DOWN
| move RIGHT                             | MARK                             | MARK
| MARK                                    | move UP                         | move DOWN
| move RIGHT                             | MARK                             | MARK
| MARK                                    -----                             -----
-----
repeat SIZE times                       repeat SIZE times                 repeat SIZE times
-----                                     -----                             -----
| move LEFT                             | move DOWN                       | move UP
| move LEFT                             | move DOWN                       | move UP
| move LEFT                             | move RIGHT                      | move RIGHT
-----                                     -----                             -----

repeat SIZE times                       repeat SIZE times                 repeat SIZE times
-----                                     -----                             -----
| move RIGHT                             | move LEFT                       | move RIGHT
| move UP                                | MARK                             | move DOWN
| MARK                                    | move LEFT                       | MARK
| move UP                                | MARK                             | move DOWN
| MARK                                    -----                             | MARK
-----                                     -----

repeat SIZE times                       repeat SIZE times                 repeat SIZE times
-----                                     -----                             -----
| move DOWN                             | move RIGHT                      | move LEFT
| move DOWN                             | move RIGHT                      | move UP
| move LEFT                             -----                             | move UP
-----                                     -----

```

Pixel Programming: Packet 1

Pixel Programming Codename B#

=====

current pixel

list of variables:

COLOR == _____

HEIGHT == _____

=====

```

ask user to set HEIGHT          repeat HEIGHT times          MARK
                                ----
                                move LEFT
set COLOR to BLACK             | set COLOR to          MARK
                                |   BLACK              move LEFT
MARK                             | move UP              MARK
MARK                             | MARK                MARK
move RIGHT                       | move UP
MARK                             | MARK
move RIGHT                       | set COLOR to RED
MARK                             | move LEFT
                                | move DOWN
                                | MARK
                                | move LEFT
                                | move DOWN
                                | MARK
                                | move LEFT
                                | set COLOR to
                                |   BLACK
                                | MARK
                                | move UP
                                | MARK
                                | move UP
                                | MARK
                                | move UP
                                | move RIGHT
                                | move RIGHT
                                | move RIGHT
    
```


Pixel Programming: Packet 1

Pixel Programming Codename CLOTHO

current pixel

list of variables:

COLOR == _____

LENGTH == _____

```
=====
ask user to set LENGTH                                | MARK                                | MARK
                                                    |                                     |
                                                    | move RIGHT                          |
REPEAT LENGTH TIMES                                | move LEFT                          | MARK
----                                                | MARK                                |
| set COLOR to BLUE                                | move LEFT                          | move DOWN
|                                                    | MARK                                | move RIGHT
| move UP                                           |                                     | MARK
| MARK                                              | move LEFT                          |
| move UP                                           | move UP                            | set COLOR to BLUE
| MARK                                              | MARK                                |
|                                                    | move LEFT                          | move DOWN
| move UP                                           | move UP                            | MARK
| move RIGHT                                        | MARK                                | move DOWN
| MARK                                              | move LEFT                          | move LEFT
| move UP                                           | move UP                            | MARK
| move RIGHT                                        | MARK                                |
| MARK                                              |                                     | move LEFT
| move UP                                           | move UP                            | MARK
| move RIGHT                                        | MARK                                | move LEFT
| MARK                                              |                                     | MARK
|                                                    | move UP                            |
| move RIGHT                                        | move UP                            | move LEFT
| MARK                                              | MARK                                | move UP
| move RIGHT                                        | move UP                            | MARK
| MARK                                              | MARK                                | move LEFT
|                                                    |                                     | move UP
| move DOWN                                        | move UP                            | MARK
| move RIGHT                                        | move RIGHT                         | move LEFT
| MARK                                              | MARK                                | move UP
|                                                    | move UP                            | MARK
| set COLOR to RED                                | move RIGHT                         |
|                                                    | MARK                                | move UP
| move DOWN                                        |                                     | MARK
| MARK                                              | move RIGHT                         |
|                                                    |                                     |
| move DOWN                                        |                                     |
| move LEFT                                        |                                     |
=====
```