**Activity 1-**

**Simulation of electrical switch**

*Design a C program to simulate an operation of an electrical switch where the program takes input values either 0 or 1 representing the switch be off or on respectively.Using a suitable conditional statement the program should interpret the input values and display the corresponding condition as on or off.Additionally the program should handle invalid input values and provide appropriate error messages.*

**Research-**

A currency-counting machine is a machine that counts money—either stacks of [banknotes](https://en.wikipedia.org/wiki/Banknote) or loose collections of [coins](https://en.wikipedia.org/wiki/Coin). Counters may be purely mechanical or use electronic components. The machines typically provide a total count of all money, or count off specific batch sizes for wrapping and storage.cash counting machines are used to rapidly and accurately tally banknotes, providing features like counterfeit detection through [UV, magnetic, and infrared sensors](https://www.google.com/search?cs=1&sca_esv=5781ecd08cb21da5&sxsrf=AE3TifP__Gc-TycdeUM_cassJuLEAkwUEQ%3A1758175691975&q=UV%2C+magnetic%2C+and+infrared+sensors&sa=X&ved=2ahUKEwiguZjs0uGPAxX1zDgGHcdxFOkQxccNegQIAxAC&mstk=AUtExfAZcUeTwYZ74BdSZVqeAjF7TkXiKSVH_pfq6erY1Br9eWiMl1IgzrnGZNyq1bMDowUGYCXVPmUCtlAzsxr-nSR5oODsjo2JN01z-D4icp_8nBFPoH-k7KANxtSWKfMHqLjAzFOKBIW3WN7W2Z_xRII-LxNE7_Lzevb98OoV2BKVeHRxFDleU57GlUMaub5iP9JDZVlqavw3BPMD1pG3zc3j2IQfN4Lvbd8uGFiMiECnPqUNWDVkwmj2tlcjmZI0n8k1BFiakNyzM62zh3Euaa104YnBzLxVZPaQWAmq24DCt8hivLGHWeCvqe9G_AvDlXQ7siE2-MmRrivydioaUUbCg1nr6276Xahm75tN40ALBxYWPWP9f7wSmkMRyaE4SdAU999hAQn-Sxv0D20UJw&csui=3).

In a batch process, the output of the process appears in quantities of materials or lots. A batch process has a beginning and an end. Batch processes are neither continuous nor discrete, but have the characteristics of both. The batch process is usually performed over and over. The product of a batch process is called a batch.

Automated batching systems eliminate human variability factors that historically contributed to product quality inconsistencies.

The batching function on a cash counting machine allows users to pre-set a specific number of bills to count and stop, enabling them to create bundles or organized cash stacks for deposits or transactions. This function is crucial for businesses that handle large volumes of cash, as it streamlines cash management by grouping notes into convenient, predetermined amounts. The ability to count and pause automatically facilitates the precise separation of cash into desired batches.

[wikipedia.org](http://wikipedia.org)

[Sciencedirect.com](http://sciencedirect.com)

[rwoolworld.com](http://rwoolworld.com)

**Analyze-**

This process of batching function can be used in cash counting machines. In bigger businesses which deal with huge amounts of cash, the cash needs to be sorted, counted and debited according to the needs of transactions.The cash counting machine needs to stop at a particular point after the batching is done.After counting, this cash can now be sorted and arranged according to the needs.

**Ideate-**

In modern technology machines the machine also detects fake currency so we don’t need to worry about it.

Using the switch program will be easy here. As the UV, infrared and magnetic sensors do the work, the machine needs to stop after count is done.

Let me give you an example-

The switch program will work as 0 for off and 1 for on.

If someone needs some cash from a some amount per cash note of some currency, we need particular notes.After we give the count on machine and the machine reaches the desired count, the switch value will turn from 1 to 0 and the machine will stop.We can collect the separated money from the machine.

The switch value is 0 at start, 1 when the machine starts, and 0 when the counting is done.

**Build-**

#include <stdio.h>

#include <string.h>

void main() {

int amount, notevalue, count, i, remaindermoney;int switch\_code=0;

char yesorno[10];

printf("Please enter the currency notes inside deposit of machine\n");

printf("Please enter 'YES' if you entered the notes\n");

scanf("%s", yesorno);

if (strcmp(yesorno, "YES") == 0) {

printf("Please enter the amount you want\n");

scanf("%d", &amount);

printf("Please enter the value per currency of your notes deposited\n");

scanf("%d", &notevalue);

if (amount < notevalue) {

printf("Amount is less than the note value, can't proceed.\n");

} else {

count = amount / notevalue;

remaindermoney = amount % notevalue;

printf("The machine will provide you with %d notes of %d\n", count, notevalue);

switch\_code=1;

for (i = 1; switch\_code==1; i++) {

printf("Dispensing %d note(s)\n", i);

if(i==count)

{

switch\_code=0;

}}

if (remaindermoney > 0) {

printf("No change to return, remaining money: %d\n", remaindermoney);

} else {

printf("Amount dispensed.\n");

}

printf("Collect the amount from the machine.\n");

}

}

printf("Thank you!\n");

}

**Testing-**

1)If YES and no remainder-

Please enter the currency notes inside deposit of machine

Please enter 'YES' if you entered the notes

YES

Please enter the amount you want

500

Please enter the value per currency of your notes deposited

100

The machine will provide you with 5 notes of 100

Dispensing 1 note(s)

Dispensing 2 note(s)

Dispensing 3 note(s)

Dispensing 4 note(s)

Dispensing 5 note(s)

Amount dispensed.

Collect the amount from the machine.

Thank you!

2)If YES and some remainder-

Please enter the currency notes inside deposit of machine

Please enter 'YES' if you entered the notes

YES

Please enter the amount you want

420

Please enter the value per currency of your notes deposited

100

The machine will provide you with 4 notes of 100

Dispensing 1 note(s)

Dispensing 2 note(s)

Dispensing 3 note(s)

Dispensing 4 note(s)

No change to return, remaining money: 20

Collect the amount from the machine.

Thank you!

3)If NO-

Please enter the currency notes inside deposit of machine

Please enter 'YES' if you entered the notes

NO

Thank you!

**Implement-**

<https://github.com/Sid-2477/Use-of-switch-in-cash-counting-machine.git>

Thank You