

Developing an RPN Calculator

...on what was once a fully
functional financial calculator

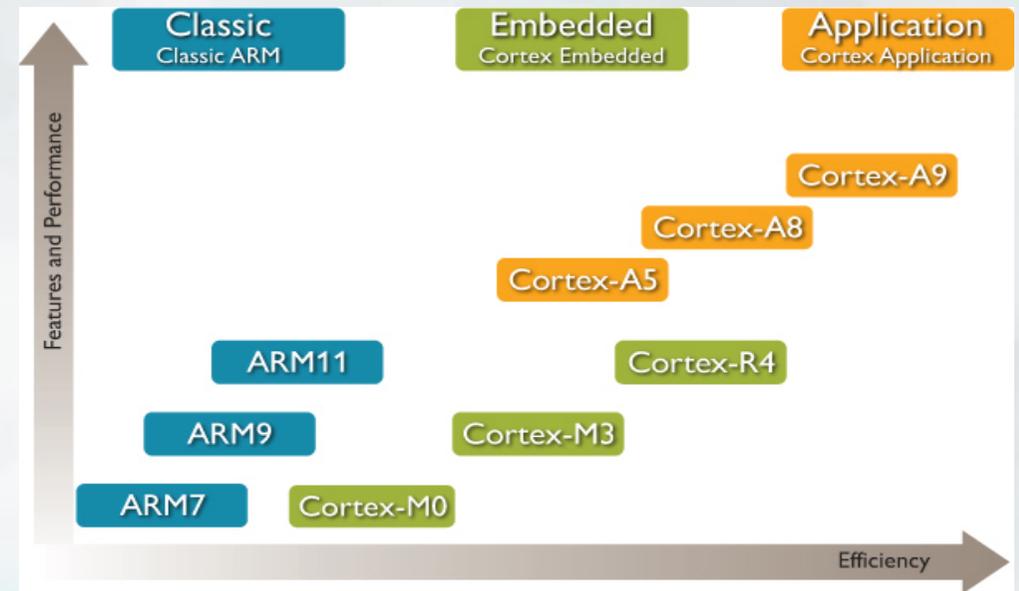
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Overview



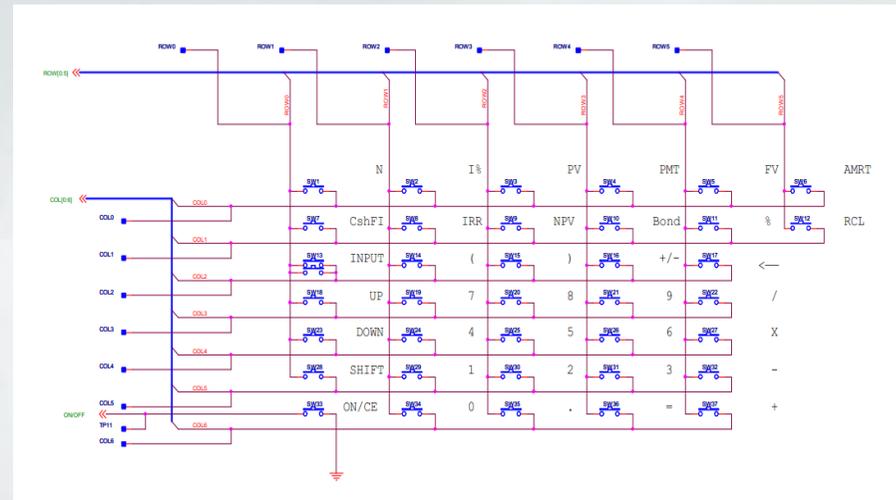
- Concept
- Platform
- Methods



Goals

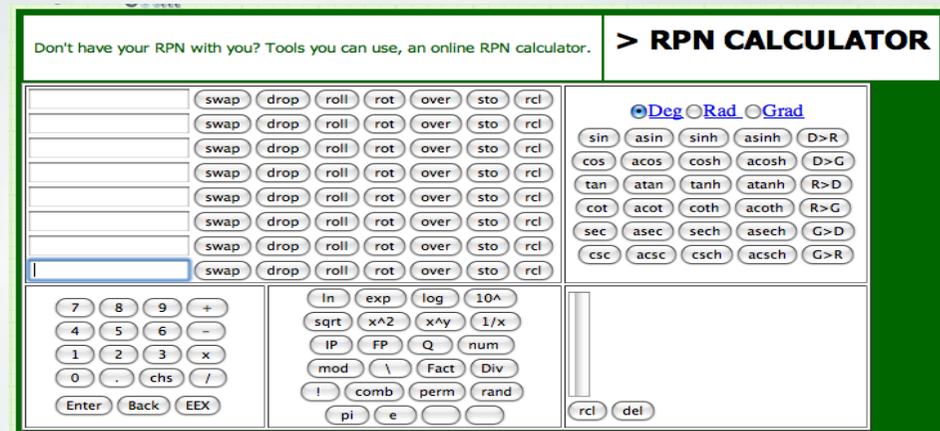


Lab 1-Scrolling



Lab 2-Scanning

123 +



Lab 3-Storing and Display

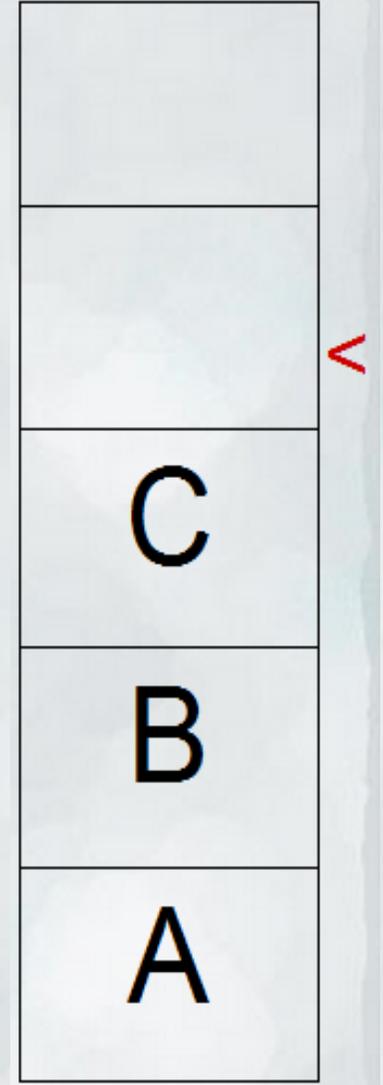
Lab 4-Stacks and Operations

Tutorial

Reverse Polish Notation (RPN):

Operation	Infix Notation	Reverse Polish Notation	Key Presses
The addition of 1 and 2	1 + 2	1 2 +	A. "1", "INPUT" B. "2", "+" Result: 3
The subtraction of 4 from 10	10 - 4 OR 10 + -4	10 4 - OR 10 -4 +	A. "1", "0", "INPUT" B. "4", "-" OR A. "1", "0", "INPUT" B. "+/-", "4", "+" Result: 6
The multiplication of 12 and the sum of 7 and 3	12 x (7+3)	12 7 3 + x	A. "1", "2", "INPUT" B. "7", "INPUT" C. "3", "+" D. "x" Result: 120

STACK



Implementation of Code

Lab 1:

- int main()

Lab 2:

- int main()
- int keyboard_key()

Lab 3:

- int main()
- void integer_to_character(int key_value, char *display)
- int keyboard_key()
- void keyboard_get_entry(struct entry *result)

Lab 4:

- Lab 3 functions
- int do_operation(char operation, int int1, int int2)
- void display_int(int the_int)

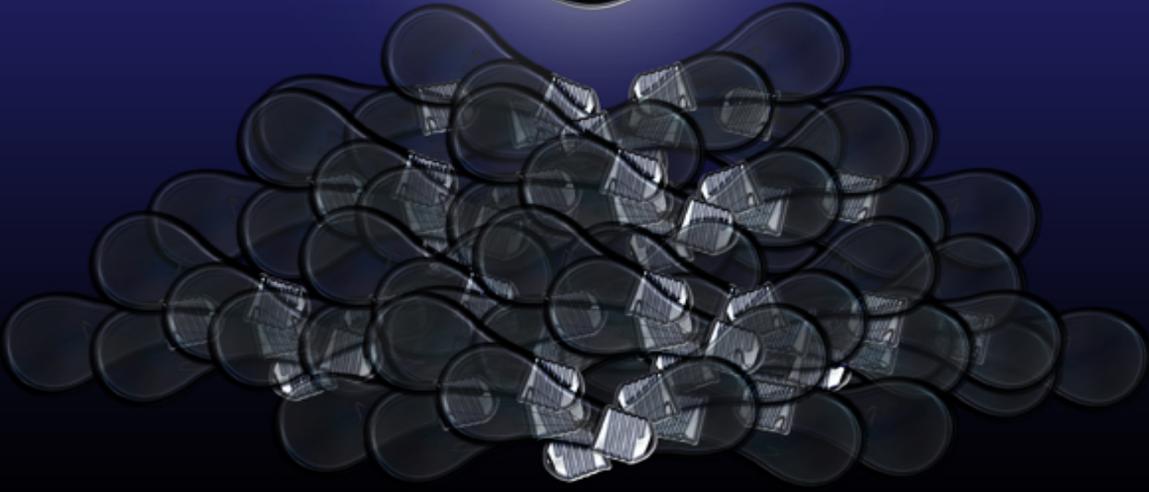
```
case '*':  
    if(((int1%100000)*(int2%100000))%100000==  
        (int1*int2)%100000)  
        return int1*int2;  
    else  
        return INT_MAX;
```

```
last_key=keyboard_key();  
if(last_key<'0'+10 && last_key>='0' && (num)<INT_MAX/10  
    &&last_key!=key_before_last_key){  
    lcd_put_char7(last_key,count++);  
    num=num*10+(last_key-'0');  
}
```

```
if(last_key==operations[i]){  
    lcd_put_char7(last_key,11);  
    result->operation=last_key;  
    result->number=num*poscheck;  
    return;  
}
```

LESSONS

LEARNED



References

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Questions?