Fundamental Coding with C

Functions 3: Library functions

Fundamental
Coding with C

Functions 3: Library functions

- Library functions in language are inbuilt functions which are grouped together and placed in a common place called library.
- We can make use of these library functions to get the predefined output instead of writing our own code to get those outputs.
- These library functions are created by the people who designed and created the different coding languages.

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- In C library functions are declared in many header files which are saved as `file_name.h`.
- For use a library in your C program you need header file by including it with the C directive `#include` and then the library `file_name.h` between `< >` or `“ “`
- Including a header file is equal to copying the content of the header file.
- A simple practice in C programs is that we keep all the function prototypes in the header files and include that header file wherever it is required.

```
#include <stdio.h>
#include "math.h"
#include <string.h>
```

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- Basic C libraries:
- <stdio.h> Standard input-output header . Used to perform input and output operations like scanf() and printf().
- <string.h> String header. Used to perform string manipulation operations like strlen and strcpy.
- <stdlib.h> Standard library header. Used to perform standard utility functions like dynamic memory allocation using functions such as malloc() and calloc().
- <math.h> Math header. Used to perform mathematical operations like sqrt() and pow() to obtain the square root and the power of a number respectively.
- <time.h> Time header. Used to perform functions related to date and time like setdate() and getdate() to modify the system date and get the CPU time respectively.
- etc… There are a lot of libraries in C language.

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```c
#include <stdio.h>
#include <math.h>
int main()
{
    printf("Code is Loading\n");
    double number=5, square_root;
    int base = 6, power = 3, power_result;
    int integer = -7, integer_result;
    square_root = sqrt(number);
    printf("The square root of %lf is: %lf\n", number, square_root);
    power_result = pow(base,power);
    printf("%d raised to the power %d is: %d\n", base, power,
    power_result);
    integer_result = abs(integer);
    printf("The absolute value of %d is: %d\n", integer, integer_result);
    return 0;
}
```

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    printf("The absolute value of %d is: %d\n", integer, integer_result);
    return 0;
}
```

It’s time to try

https://repl.it/languages/c

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Multidimensional Arrays

```c
#include <stdio.h>
#include <math.h>
#include <stdlib.h>
int main()
{
    printf("Code is Loading\n");
    double number=5, square_root;
    int base = 6, power = 3, power_result;
    int integer = -7, integer_result;
    square_root = sqrt(number);
    printf("The square root of %lf is: %lf\n", number,
    square_root);
    power_result = pow(base,power);
    printf("%d raised to the power %d is: %d\n", base, power,
    power_result);
    integer_result = abs(integer);
    printf("The absolute value of %d is: %d\n", integer,
    integer_result);
    return 0;
}
```