

Отчет по лабораторной работе №14

Средства, применяемые при разработке ПО в ОС типа UNIX/Linux

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Информация

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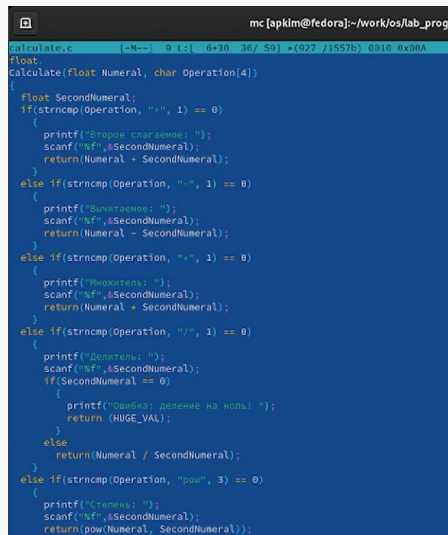
Вводная часть

Научиться писать программы.

Создание каталогов и файлов (рис.1)

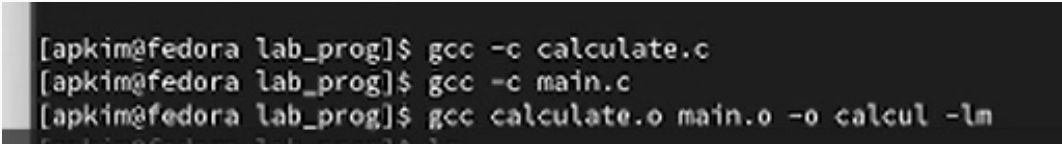
```
[apkin@fedora ~]$ cd work
[apkin@fedora work]$ cd os
[apkin@fedora os]$ mkdir lab_prog
[apkin@fedora os]$ cd lab_prog
[apkin@fedora lab_prog]$ touch calculate.h
[apkin@fedora lab_prog]$ touch calculate.c
[apkin@fedora lab_prog]$ touch main.c
[apkin@fedora lab_prog]$ touch Makefile
[apkin@fedora lab_prog]$ ls
calculate.c calculate.h main.c Makefile
[apkin@fedora lab_prog]$
```

Программа (рис.2)



```
mc [apklm@fedora]:~/work/os/lab_prog
calculate.c  [-M--]  9 1: [ 6+30 36/ 59] *(927 /1557b) 0010 0x00A
float
Calculate(float Numeral, char Operation[4])
{
    float SecondNumeral;
    if(strncmp(Operation, "+", 1) == 0)
    {
        printf("Складываем: ");
        scanf("%f", &SecondNumeral);
        return(Numeral + SecondNumeral);
    }
    else if(strncmp(Operation, "-", 1) == 0)
    {
        printf("Вычитаемое: ");
        scanf("%f", &SecondNumeral);
        return(Numeral - SecondNumeral);
    }
    else if(strncmp(Operation, "*", 1) == 0)
    {
        printf("Умножитель: ");
        scanf("%f", &SecondNumeral);
        return(Numeral * SecondNumeral);
    }
    else if(strncmp(Operation, "/", 1) == 0)
    {
        printf("Делитель: ");
        scanf("%f", &SecondNumeral);
        if(SecondNumeral == 0)
        {
            printf("Ошибка: деление на ноль! ");
            return (HUGE_VAL);
        }
        else
            return(Numeral / SecondNumeral);
    }
    else if(strncmp(Operation, "pow", 3) == 0)
    {
        printf("Степень: ");
        scanf("%f", &SecondNumeral);
        return(pow(Numeral, SecondNumeral));
    }
}
```

Компиляция (рис.3)

A terminal window with a dark background and light gray text. It shows three lines of commands being entered at a prompt. The first line is 'gcc -c calculate.c', the second is 'gcc -c main.c', and the third is 'gcc calculate.o main.o -o calcul -lm'. The prompt is '[apkim@fedora lab_prog]\$' on each line.

```
[apkim@fedora lab_prog]$ gcc -c calculate.c  
[apkim@fedora lab_prog]$ gcc -c main.c  
[apkim@fedora lab_prog]$ gcc calculate.o main.o -o calcul -lm
```

Рис. 3: 3

Создание Makefile (рис.4)

```
Makefile      [-M--] 25 1:[ 1+14 15/ 15] *(291 / 291b) <EOF>
CC = gcc
CFLAGS =
LIBS = -lm

calcul: calcul.o main.o
        gcc calcul.o main.o -o calcul $(LIBS)
.....
calculate.o: calculate.c calculate.h
        gcc -c calculate.c $(CFLAGS)
.....
main.o: main.c calculate.h
        gcc -c main.c $(CFLAGS)

clean:
```

Проверка работы программы (рис.5)

```
[apkin@fedora lab_prog]$ gdb ./calcul
GNU gdb (GDB) Fedora 11.1-5.fc34
Copyright (C) 2021 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Type "show copying" and "show warranty" for details.
This GDB was configured as "x86_64-redhat-linux-gnu".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<https://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
    <http://www.gnu.org/software/gdb/documentation/>.

For help, type "help".
Type "apropos word" to search for commands related to "word"...
Reading symbols from ./calcul...
(no debugging symbols found in ./calcul)
(gdb) gdb ./calcul
Undefined command: "gdb". Try "help".
(gdb) run
Starting program: /home/apkin/work/os/lab_prog/calcul
Число: 3
```

В ходе выполнения данной лабораторной работы мы научились применять средства для разработки ПО ОС типа UNIX/Linux.

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