プログラミング1A レポート課題第１回

西田直人

2018 年 7 月 24 日

1　課題 1-1

以下 x. (入力したコマンド) の形式で記述する。

a. cd
b. pwd
c. ls -l
d. mkdir prog1
e. cd prog1
f. mkdir 01
g. cd 01
h. cp /home/shizuki.buntaro.ga/prog1/test1.c .
i. cat test1.c
j. less test1.c
k. cat -b
l. chmod 644 test1.c
m. mv test1.c primes.c
n. cc -o primes primes.c

2　課題 1-2

レポート課題（第一回）用のディレクトリのフルパス名：
/home/s1811433/prog1/01/01kadai

レポート課題（第一回）用のディレクトリ内に作成した arithmetic.c のフルパス名:
/home/s1811433/prog1/01/01kadai/arithmetic.c

プログラム実行結果

```
s1811433@7C202-P048:~/prog1/01/01kadai$ cc -o arithmetic arithmetic.c
s1811433@7C202-P048:~/prog1/01/01kadai$ ./arithmetic
27
19
92
5
```

```
3
s1811433@7C202-P048:~/prog1/01/01kadai$
```

3　課題 1-3

a.

page.22

画面に表示を行う機能について書かれている stdio.h というファイルを、コンパイルする前に読み込んでおく

b.

page.28

￥n は改行を行う特殊な記号となっているわけです。

4　課題 1-4

作成したプログラムのソースコード

```
#include <stdio.h>

void main(){
  printf(‘‘Rick said to Ilsa:\n’’);
  printf(‘‘Here’s looking at you, kid.\n’’);
}
```

作成したプログラムの実行結果

```
s1811433@7C202-P048:~/prog1/01/01kadai$ cc -o casablanca casablanca.c
s1811433@7C202-P048:~/prog1/01/01kadai$ ./casablanca
Rick said to Ilsa:
Here’s looking at you, kid.
s1811433@7C202-P048:~/prog1/01/01kadai$
```

5　課題 1-5

作成したプログラムのソースコード

```
  File Edit Options Buffers Tools C Help
  #include <stdio.h>

  int main(void) {
    /* first paragraph */
    printf(‘‘I have a dream that one day this nation will rise up and live\n’’);
```

```
    printf(``out the true meaning of its creed.  We hold these truths to be\n'');
    printf(``self-evident: that all men are created equal.\n'');
    printf(``\n'');

    /* second paragraph */
    printf(``I have a dream that one day out in the red hills of Georgia the\n'');
    printf(``sons of former slaves and the sons of former slave owners will\n'');
    printf(``be able to sit down together at the table of brotherhood.\n'');
    printf(``\n'');

    /* third paragraph */
    printf(``I have a dream that one day even the state of Mississippi, a\n'');
    printf(``state sweltering with the heat of oppression, will be\n'');
    printf(``transformed into an oasis of freedom and justice.\n'');
    printf(``\n'');

    return0;
  }
```

作成したプログラムの実行結果

```
s1811433@7C202-P048:~/prog1/01/01kadai$ cc -o dream dream.c
s1811433@7C202-P048:~/prog1/01/01kadai$ ./dream
I have a dream that one day this nation will rise up and live
out the true meaning of its creed.  We hold these truths to be
self-evident: that all men are created equal.

I have a dream that one day out in the red hills of Georgia the
sons of former slaves and the sons of former slave owners will
be able to sit down together at the table of brotherhood.

I have a dream that one day even the state of Mississippi, a
state sweltering with the heat of oppression, will be
transformed into an oasis of freedom and justice.

s1811433@7C202-P048:~/prog1/01/01kadai$
```

6 課題 1-6

作成したプログラムのソースコード

```
  #include <stdio.h>
  #include <stdlib.h>

  int main(void){
    int i=1, gaburiasu, a, b, c;

    srand(time(NULL));


    printf(``How many quadratic expressions= ``);
    scanf(``%d'', &gaburiasu);
    printf(``\\begin{enumerate}\n'');
```

```
while(i <= gaburiasu){
  a = rand() % 41 - 20;
  b = (rand()*rand()+rand()) % 41 - 20;
  c = rand()*rand() % 41 - 20;

  if(a == 0){
    if(b>1){
      if(c>0){
        printf(``\\item $%dx^2+%dx+%d=0$\n'', a+2, b, c);
      }
      else if(c<0){
        printf(``\\item $%dx^2+%dx%d=0$\n'', a+2, b, c);
      }
      else{
        printf(``\\item $%dx^2+%dx=0$\n'', a+2, b);
      }
    }
    else if(b<-1){
      if(c>0){
        printf(``\\item $%dx^2%dx+%d=0$\n'', a+2, b, c);
      }
      else if(c<0){
        printf(``\\item $%dx^2%dx%d=0$\n'', a+2, b, c);
      }
      else{
        printf(``\\item $%dx^2%d=0$\n'', a+2, b);
      }
    }
    else if(b==-1){
      if(c>0){
        printf(``\\item $%dx^2-x+%d=0$\n'', a+2, c);
      }
      else if(c<0){
        printf(``\\item $%dx^2-x%d=0$\n'', a+2, c);
      }
      else{
        printf(``\\item $%dx^2-x=0$\n'', a+2);
      }
    }
    else if(b==1){
      if(c>0){
        printf(``\\item $x^2+x+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $x^2+x%d=0$\n'', c);
      }
      else{
        printf(``\\item $x^2+x=0$\n'');
      }
    }
    else{
      if(c>0){
        printf(``\\item $x^2+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $x^2%d=0$\n'', c);
```

```
      }
      else{
        printf(``\\item $x^2=0$\n'');
      }
    }
  }
  else if(a==-1){
    if(b>1){
      if(c>0){
        printf(``\\item $-x^2+%dx+%d=0$\n'', b, c);
      }
      else if(c<0){
        printf(``\\item $-x^2+%dx%d=0$\n'', b, c);
      }
      else{
        printf(``\\item $-x^2+%dx=0$\n'', b);
      }
    }
    else if(b<-1){
      if(c>0){
        printf(``\\item $x^2%dx+%d=0$\n'', b, c);
      }
      else if(c<0){
        printf(``\\item $x^2%dx%d=0$\n'', b, c);
      }
      else{
        printf(``\\item $x^2%dx=0$\n'', b);
      }
    }
    else if(b==-1){
      if(c>0){
        printf(``\\item $x^2-x+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $x^2-x%d=0$\n'', c);
      }
      else{
        printf(``\\item $x^2-x=0$\n'');
      }
    }
    else if(b==1){
      if(c>0){
        printf(``\\item $x^2-x+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $x^2-x%d=0$\n'', c);
      }
      else{
        printf(``\\item $x^2-x=0$\n'');
      }
    }
    else if(b==1){
      if(c>0){
        printf(``\\item $x^2+x+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $x^2+x%d=0$\n'', c);
```

```
      }
      else{
        printf(``\\item $x^2+x=0$\n'');
      }
    }
    else{
      if(c>0){
        printf(``\\item $x^2+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $x^2%d=0$\n'', c);
      }
      else{
        printf(``\\item $x^2=0$\n'');
      }
    }
  }
  else if(a==-1){
    if(b>1){
      if(c>0){
        printf(``\\item $-x^2+%dx+%d=0$\n'', b, c);
      }
      else if(c<0){
        printf(``\\item $-x^2+%dx%d=0$\n'', b, c);
      }
      else{
        printf(``\\item $-x^2+%dx=0$\n'', b);
      }
    }
    else if(b<-1){
      if(c>0){
        printf(``\\item $-x^2%dx+%d=0$\n'', b, c);
      }
      else if(c<0){
        printf(``\\item $-x^2%dx%d=0$\n'', b, c);
      }
      else{
        printf(``\\item $-x^2%dx=0$\n'', b);
      }
    }
    else if(b==-1){
      if(c>0){
        printf(``\\item $-x^2-x+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $-x^2-x%d=0$\n'', c);
      }
      else{
        printf(``\\item $-x^2-x=0$\n'');
      }
    }
    else if(b==1){
      if(c>0){
        printf(``\\item $-x^2+x+%d=0$\n'', c);
      }
    }
    else if(b==1){
```

```
      if(c>0){
        printf(``\\item $-x^2+x+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $-x^2+x%d=0$\n'', c);
      }
      else{
        printf(``\\item $-x^2+x=0$\n'');
      }
    }
    else{
      if(c>0){
        printf(``\\item $-x^2+%d=0$\n'', c);
      }
      else if(c<0){
        printf(``\\item $-x^2%d=0$\n'', c);
      }
      else{
        printf(``\\item $-x^2=0$\n'');
      }
    }
  }
  else{
    if(b>1){
      if(c>0){
        printf(``\\item $%dx^2+%dx+%d=0$\n'', a, b, c);
      }
      else if(c<0){
        printf(``\\item $%dx^2+%dx%d=0$\n'', a, b, c);
      }
      else{
        printf(``\\item $%dx^2+%dx=0$\n'', a, b);
      }
    }
    else if(b<-1){
      if(c>0){
        printf(``\\item $%dx^2%dx+%d=0$\n'', a, b, c);
      }
      else if(c<0){
        printf(``\\item $%dx^2%dx%d=0$\n'', a, b, c);
      }
      else{
        printf(``\\item $%dx^2%dx=0$\n'', a, b);
      }
    }
    else if(b==-1){
      if(c>0){
        printf(``\\item $%dx^2-x+%d=0$\n'', a, c);
      }
      else if(c<0){
        printf(``\\item $%dx^2-x%d=0$\n'', a, c);
      }
      else{
        printf(``\\item $%dx^2-x=0$\n'', a);
      }
    }
    else if(b==1){
```

```
        if(c>0){
          printf(``\\item $%dx^2+x+%d=0$\n'', a, c);
        }
        else if(c<0){
          printf(``\\item $%dx^2+x%d=0$\n'', a, c);
        }
        else{
          printf(``\\item $%dx^2+x=0$\n'', a);
        }
      }
      else{
        if(c>0){
          printf(``\\item $%dx^2+%d=0$\n'', a, c);
        }
        else if(c<0){
          printf(``\\item $%dx^2%d=0$\n'', a, c);
        }
        else{
          printf(``\\item $%dx^2=0$\n'', a);
        }
      }
    }

    sleep(1);
    i++;
  }
  printf(``\\end{enumerate}\n'');
  return 0;
}
```

6.1 作成したプログラムの実行結果

6.1.1 プログラムから出力されたもの

```
s1811433@7C202-P048:~/prog1/01/01kadai$ cc -o quadratic quadratic.c
quadratic.c: In function ‘’main:
quadratic.c:7:9: warning: implicit declaration of function ‘’time [-Wimplicit-function-declaration]
srand(time(NULL));
^
quadratic.c:248:5: warning: implicit declaration of function ‘’sleep [-Wimplicit-function-declaration]
sleep(1);
^
s1811433@7C202-P048:~/prog1/01/01kadai$ ./quadratic
How many quadratic expressions= 4
\begin{enumerate}
\item $15x^2+8x-31=0$
\item $-20x^2-14x-45=0$
\item $2x^2-24=0$
\item $-9x^2-40x-28=0$
\end{enumerate}
s1811433@7C202-P048:~/prog1/01/01kadai$
```

6.1.2 出力されたものを LaTeX 文書の中に取り入れたもの

1. $5x^2 - 17x - 9 = 0$

2. $5x^2 - 15x + 3 = 0$
3. $-11x^2 - 15x - 4 = 0$
4. $-3x^2 + 3x - 18 = 0$
5. $-12x^2 - 23x - 43 = 0$
6. $19x^2 - 38x + 11 = 0$
7. $11x^2 - 40x - 27 = 0$
8. $9x^2 - 6x - 10 = 0$
9. $17x^2 - 32x + 9 = 0$
10. $-13x^2 - 20x - 44 = 0$