Homework 5

Hyunki Lee

Part1

Source Code

hlee152@gsuad.gsu.edu@snowball:~

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

int main(int argi, char *argc[]){

double loan,rate;
int num,i;
double A,r,b;
double INT[1000],B[1000],P[1000];

loan = atof(argc[1]);
rate = atof(argc[2]);
num = atof(argc[3]);

r = rate/1200;
A = loan*((r*pow(1+r,num))/(pow(1+r,num)-1));
*(B) = loan;

printf("\nMontly payment should be %.2lf\n",A);
printf("============================AMORTIZATION SCHEDULE==================\n"
);
printf("# \t Payment \t Principal \t Interest \t Balance\n");

for( i=1; i<=num; i++){
*(INT+i) = *(B+i-1)*r;
*(P+i) = A-*(INT+i);
*(B+i) = *(B+i-1)-*(P+i);

printf("%d \t $%.2lf \t $%.2lf \t $%.2lf ",i,A,P[i],INT[i]);

if(INT[i]/10.0<1.0)
printf("\t\t $%.2lf",B[i]);
else
printf("\t $%.2lf",B[i]);
printf("\n");
}

return 0;

}
~
~
~
~
~
                                                              15,0-1        All
```

Output

```
[hlee152@gsuad.gsu.edu@snowball ~]$ ./loan 2000 7.5 6

Montly payment should be 340.66
============================AMORTIZATION SCHEDULE==================
#        Payment          Principal        Interest         Balance
1        $340.66          $328.16          $12.50           $1671.84
2        $340.66          $330.21          $10.45           $1341.62
3        $340.66          $332.28          $8.39            $1009.35
4        $340.66          $334.35          $6.31            $674.99
5        $340.66          $336.44          $4.22            $338.55
6        $340.66          $338.55          $2.12            $0.00
[hlee152@gsuad.gsu.edu@snowball ~]$
```

Part2

1)

(a)

```
struct point Center(struct rect r) {
        struct point s;
        s.x = (r.upperLeft.x + r.lowerRight.x)/2;
        s.y = (r.upperLeft.y + lowerLeft.y)/2;
        return s;
}
```

(b)

```
struct rect Move(struct rect r, int x, int y) {
        r.upperLeft.x += x;
        r.upperLeft.y += y;
        r.lowerRight.x += x;
        r.lowerLeft.y += y;
        return r;
}
```

2)

```
struct rect *p;
p = (struct rect *) malloc(sizeof(struct rect));
p->upperLeft.x = 9;
p->upperLeft.y = 8;
p->lowerRight.x = 2;
p->lowerRight.y = 1;
```

3)

```
struct rect *p;
p = (struct rect *) malloc(sizeof(struct rect));
p->upperLeft.x = 9;
p->upperLeft.y = 8;
p->lowerRight.x = 2;
p->lowerRight.y = 1;
char aname[] = “MyRect”;
p->name = (char *)malloc(strlen(aname)+1);
strcpy(p->name, aname);
```