

C Primer Plus Sixth Edition Programming Exercise Answers

Chapter 2 Programming Exercises

PE 2-1

```
/* Programming Exercise 2-1 */
#include <stdio.h>
int main(void)
{
    printf("Gustav Mahler\n");
    printf("Gustav\nMahler\n");
    printf("Gustav ");
    printf("Mahler\n");
    return 0;
}
```

PE 2-2

```
/* Programming Exercise 2-2 */
#include <stdio.h>
int main(void)
{
    printf("Adam West\n");
    printf("2011 C Primer Plus Street\n");
    printf("West San Francisco, CA 94188\n");
    return 0;
}
```

PE 2-3

```
/* Programming Exercise 2-3 */
#include <stdio.h>
int main(void)
{
    int ageyears;    /* age in years */
    int agedays;    /* age in days */
                    /* large ages may require the long type */
    ageyears = 101;
    agedays = 365 * ageyears;
    printf("An age of %d years is %d days.\n", ageyears, agedays);
    return 0;
}
```

PE 2-4

```
/* Programming Exercise 2-4 */
#include <stdio.h>
void jolly(void);
void deny(void);
int main(void)
{
    jolly();
    jolly();
    jolly();
    deny();
    return 0;
}
void jolly(void)
{
    printf("For he's a jolly good fellow!\n");
}
void deny(void)
{
    printf("Which nobody can deny!\n");
}
```

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PE 2-5

```
/* Programming Exercise 2-5 */
#include <stdio.h>
void br(void);
void ic(void);
int main(void)
{
    br();
    printf(", ");
    ic();
    printf("\n");
    ic();
    printf(",\n");
    br();
    printf("\n");
    return 0;
}
void br(void)
{
    printf("Brazil, Russia");
}
void ic(void)
{
    printf("India, China");
}
}
```

PE 2-6

```
/* Programming Exercise 2-6 */
#include <stdio.h>
int main(void)
{
    int toes;

    toes = 10;

    printf("toes = %d\n", toes);
    printf("Twice toes = %d\n", 2 * toes);
    printf("toes squared = %d\n", toes * toes);
    return 0;
}
/* or create two more variables, set them to 2 * toes and toes * toes */
```

PE 2-7

```
/* Programming Exercise 2-7 */
#include <stdio.h>
void smile(void);
int main(void)
{
    smile();
    smile();
    smile();
    printf("\n");
    smile();
    smile();
    printf("\n");
    smile();
    printf("\n");
    return 0;
}
void smile(void)
```

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```
{
    printf("Smile!");
}
/* cutting and pasting text is handy here */
```

PE 2-8

```
/* Programming Exercise 2-8 */
#include <stdio.h>
void one_three(void);
void two(void);
int main(void)
{
    printf("starting now:\n");
    one_three();
    printf("done!\n");
    return 0;
}
void one_three(void)
{
    printf("one\n");
    two();
    printf("three\n");
}
void two(void)
{
    printf("two\n");
}
}
```

Chapter 3 Programming Exercises

PE 3-1

```
/* Programming Exercise 3-1 */
/* This program requires some knowledge of what the largest and smallest
   values might be. The limits.h and float.h header files, discussed in
   Chapter 4, can provide better values */
#include <stdio.h>
int main(void)
{
    int ibig = 2147483647;
    float big = 1.0e37;
    float small = 1.0e-37;

    printf("ibig: %d, big + 1: %d\n", ibig, ibig + 1);
    printf("big: %e, too big: %e\n", big, big * big);
    printf("small: %e, too small: %e\n", small, small / big);

    return 0;
}
```

PE 3-2

```
/* Programming Exercise 3-2 */
#include <stdio.h>
int main(void)
{
    int ascii;

    printf("Enter an ASCII code: ");
    scanf("%d", &ascii);
    printf("%d is the ASCII code for %c.\n", ascii, ascii);
}
```

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```
    return 0;
}
```

PE 3-3

```
/* Programming Exercise 3-3 */
#include <stdio.h>
int main(void)
{
    printf("\aStartled by the sudden sound, Sally shouted,\n");
    printf("\\"By the Great Pumpkin, what was that!\\"\\n");
    return 0;
}
```

PE 3-4

```
/* Programming Exercise 3-4 */
#include <stdio.h>
int main(void)
{
    float num;
    printf("Enter a floating-point value: ");
    scanf("%f", &num);
    printf("fixed-point notation: %f\n", num);
    printf("exponential notation: %e\n", num);
    printf("p notation: %a\n", num);
    return 0;
}
```

PE 3-5

```
/* Programming Exercise 3-5 */
#include <stdio.h>
int main(void)
{
    float sec_per_year = 3.156e7;    /* seconds in a year */
    float age;
    float age_in_sec;

    printf("Enter your age in years: ");
    scanf("%f", &age);
    age_in_sec = age * sec_per_year;
    printf("Your age is %e seconds.\n", age_in_sec);
    return 0;
}
```

PE 3-6

```
/* Programming Exercise 3-6 */
#include <stdio.h>
int main(void)
{
    float mass_mol = 3.0e-23;    /* mass of water molecule in grams */
    float mass_gt = 950;        /* mass of quart of water in grams */
    float quarts;
    float molecules;

    printf("Enter the number of quarts of water: ");
    scanf("%f", &quarts);
    molecules = quarts * mass_gt / mass_mol;
    printf("%f quarts of water contain %e molecules.\n", quarts, molecules);
    return 0;
}
```