```
619    /*画圈*/
620    void draw(int x, int y, char *c) {
621        circle(x, y, 10);
622        outtextxy(x - 5, y - 5, *c);    //输出元素
623    }
624    /*递归画树*/
625    void imctree(person * tree, int x, int y)
626    {
627        if (tree != NULL)
628            draw(x, y, tree->record.name);
629        if (tree->child != NULL) {
630            SuoJin++;
631            line(x - 14, y + 14, x - Left, y + 50);
632            Sleep(100);
633            imctree(tree->child, x - Left, y + 70);
634        }
635        if (tree->brother != NULL)
636        {
637            SuoJin++;
638            line(x + 14, y + 14, x + Left, y + 50);
639            Sleep(100);
640            imctree(tree->brother, x + Left, y + 70);
641        }
642
643        SuoJin--;
644
645    }
646
647    /*初始化图形界面*/
648
649    void initImg()
650    {
651
652        IMAGE imgbk;
653        loadimage(&imgbk, _T("E:/vs2019/数据结构课设/数据结构课设/10.jpg"), 1280, 660);
654        putimage(0, 0, &imgbk);//显示图片
655
656        //loadimage(NULL, _T("10.jpg"), width, height);    /*图片填充*/
657        //fillrectangle(Frame, 60, width - 100, height - 200);    /*绘制输出区域*/
658        IMAGE img;
659        loadimage(&img, _T("E:/vs2019/数据结构课设/数据结构课设/11.jpg"), 1080, 400);
660        putimage(100, 60, &img);    //显示图片
661
662    }
663
664    /*绘制按钮*/
665
666    void DrawButtle()
667    {
668        LOGFONT f;
669        gettextstyle(&f);
670        f.lfHeight = 35;
671        settextcolor(BLACK);
672        int left = Frame + Spacing / 2;
673        int top = height - 200 + Buttom;
674        int i;
```

```
675         char s0[15] = "查找";
676         char s1[15] = "插入";
677         char s2[15] = "退出";
678         char s3[15] = "查看";
679         char *s[] = { s0, s1, s2, s3 };
680         for (i = 0; i < buttleNum; i++)
681         {
682             fillrectangle(left, top, left + buttleWidth, top + buttleHeight);
683             outtextxy(left + 85, top + 6, s[i]);
684             left = left + buttleWidth + Spacing;
685         }
686     }
687
688     /*绘制查询菜单*/
689
690     void queryMenu()
691     {
692         int i;
693         char s0[15] = "根据姓名查询";
694         char s1[15] = "根据出生日期";
695         char s2[15] = "根据逝世日期";
696         char s3[15] = "根据职业查询";
697         char s4[30] = "根据配偶查询";
698         char *s[] = { s0, s1, s2, s3, s4 };
699         int g;
700         LOGFONT f;
701         gettextstyle(&f);                         // 获取当前字体设置
702         f.lfHeight = 25;
703         settextstyle(&f);
704         int menuLeft = Frame + Spacing / 2;    /*定义菜单按钮初始化位置*/
705         int MenuTop = height - 2*Frame + Buttom + buttleHeight + 20;    /*菜单初始化高度*/
706
707         for (i = 0; i < MenuNum; i++)
708         {
709             fillrectangle(menuLeft, MenuTop, menuLeft + MenuWidth, MenuTop + MenuHeight);
710             outtextxy(menuLeft + 15, MenuTop + 6, s[i]);
711             menuLeft = menuLeft + MenuWidth + MenuSpacing;
712         }
713     }
714
715     /*插入*/
716
717     info addinfo(info * newPeople)
718     {
719         bool ifaddName;
720         bool ifaddDataBirth;
721         bool ifaddPlaceBirth;
722         bool ifaddSex;
723         bool ifaddProfession;
724         bool ifaddSpouseName;
725         bool ifaddparent;
726         bool ifgetfather;
727
728         ifgetfather= InputBox(getfather, 20, "", "请输入你要添加的成员的父亲", "查询",   ↵
                300);
729         sscanf(getfather, "%s", findfather);    /*findfather 是根据用户输入的父亲姓名，用  ↵
```

```
                   来作为findname()的参数找到要插入的人的父亲节点*/
730
731      /*输入要插入的节点信息*/
732      newPeople = (info*)malloc(sizeof(info));
733      if (ifgetfather)
734      {
735          ifaddName = InputBox(addName, 20, "", "请输入你要添加的成员的姓名", "查询",    ⏎
                 300);
736          sscanf(addName, "%s", newPeople->name);    /*获取用户输入的字符串*/
737      }
738      if (ifaddName)
739      {
740          ifaddDataBirth = InputBox(addData_birth, 20, "", "请输入出生日期", "查询",    ⏎
                 300);
741          sscanf(addData_birth, "%s", newPeople->data_birth);    /*获取用户输入的字符串    ⏎
                 */
742      }
743      if (ifaddDataBirth)
744      {
745          ifaddPlaceBirth= InputBox(addPlace_birth, 20, "", "请输入出生地", "查询",    ⏎
                 300);
746          sscanf(addPlace_birth, "%s", newPeople->place_birth);    /*获取用户输入的字符    ⏎
                 串*/
747      }
748      if (ifaddPlaceBirth)
749      {
750          ifaddSex= InputBox(addSex, 20, "", "请输入性别", "查询", 300);
751          sscanf(addSex, "%d", newPeople->sex);    /*获取用户输入的字符串*/
752      }
753      if (ifaddSex)
754      {
755          ifaddProfession= InputBox(addProfession, 20, "", "请输入职业", "查询", 300);
756          sscanf(addProfession, "%s", newPeople->profession);    /*获取用户输入的字符串    ⏎
                 */
757      }
758      if (ifaddProfession)
759      {
760          ifaddSpouseName = InputBox(addSpouse_name, 20, "", "请输入配偶", "查询",    ⏎
                 300);
761          sscanf(addSpouse_name, "%s", newPeople->spouse_name);    /*获取用户输入的字符    ⏎
                 串*/
762      }
763      if (ifaddSpouseName)
764      {
765          ifaddparent = InputBox(addParent_name, 20, "", "请输入父母姓名", "查询",    ⏎
                 300);
766          sscanf(addParent_name, "%s", newPeople->parent_name);    /*获取用户输入的字符    ⏎
                 串*/
767      }
768      if (ifaddparent)
769      {
770
771          LOGFONT f;
772          gettextstyle(&f);
773          f.lfHeight =35;
774          settextcolor(BLACK);
```

```cpp
775            setbkmode(TRANSPARENT);
776            _tcscpy_s(f.lfFaceName, _T("黑体"));
777            settextstyle(&f);
778            char add[] = "新成员信息录入成功\n欢迎新成员加入！！";
779            RECT r = { Frame + 15, 75, width - 135, height - 215 };
780            drawtext(add, &r, DT_CENTER | DT_VCENTER);
781        }
782        return *newPeople;
783 }
784
785 /* 绘制关系菜单*/
786 void relationshipMenu()
787 {
788     int g;
789     LOGFONT f;
790     gettextstyle(&f);                        // 获取当前字体设置
791     f.lfHeight = 25;
792     settextcolor(BLACK);
793     setbkmode(TRANSPARENT);
794     _tcscpy_s(f.lfFaceName, _T("黑体"));     // 设置字体为"黑体"
795     settextstyle(&f);
796     char r0[15] = "查找父母";
797     char r1[15] = "查找祖先";
798     char r2[15] = "查找兄弟";
799     char r3[15] = "查找孩子";
800     char r4[15] = "查找后代";
801     char r5[15] = "个人信息";
802     char *p[] = {r0,r1,r2 ,r3,r4,r5};
803     int relaMenuLeft = Frame + (width - 2 * Frame) / 3;   /*定义关系菜单左侧坐标*/
804     int relaMenuRight = relaMenuLeft + relationMenuWidth;   /*定义关系菜单右侧左边*/
805     int relaMenuTop = 63;   /*定义第一个关系按钮顶部坐标*/
806     int relaMenuButton = relaMenuTop + relationMenuHeight;   /*定义关系按钮底部坐标*/
807     fillrectangle(Frame, 60, width - 100, height - 2 * Frame);   /*清空输出区域*/
808     for ( g = 0; g < relationMenuNum; g++)
809     {
810         setfillcolor(RGB(72, 81, 81));
811         fillrectangle(relaMenuLeft, relaMenuTop, relaMenuRight, relaMenuButton);
812         outtextxy(relaMenuLeft+120, relaMenuTop + 26, p[g]);
813         //setfillcolor(RGB(255, 255, 255));
814         relaMenuTop = relaMenuTop + relationMenuHeight+3;
815         relaMenuButton = relaMenuTop + relationMenuHeight;
816     }
817     setfillcolor(RGB(255,255,255 ));
818 }
819
820
821
822 /* 鼠标事件*/
823
824 char * GetMouse(char out[500] )
825 {
826     person * t;
827     char file[20] = "02.txt";
828     FILE *fp = fopen(file, "r");
829     t = create_family(fp);
830     MOUSEMSG mousemsg;        /* 定义鼠标消息*/
```

```cpp
831        while (true)
832        {
833            mousemsg = GetMouseMsg();   /*获取一条鼠标消息*/
834            int x, y;
835            bool mklButton;
836            x = mousemsg.x;    /*获取鼠标当前x坐标*/
837            y = mousemsg.y;    /*获取鼠标当前y坐标*/
838            mklButton = mousemsg.mkLButton;    /*获取鼠标当前左键是否按下*/
839
840
841            if ((y > height - 2 * Frame + Buttom) && (y < height - 2 * Frame + Buttom +
                 buttleHeight))
842            {
843                /*查询*/
844                if ((x > Frame + Spacing / 2) && (x < Frame + Spacing / 2 + buttleWidth)
                     && mklButton)    /*鼠标在第一个按钮上单击左键时，激发鼠标事件 1*/
845                {
846                    fillrectangle(Frame, 60, width - 100, height - 2 * Frame);   /*清空输
                         出区域*/
847                    MouseFindNum++;
848                    if (MouseFindNum % 2 != 0)
849                    {
850                        queryMenu();
851                    }
852                    else    /*再次点击时重新绘制界面，关闭菜单*/
853                    {
854                        fillrectangle(Frame, 60, width - 100, height - 2 * Frame);    /*清
                             空输出区域*/
855                        initImg();
856                        DrawButtle();
857                        GetMouse(out);
858                    }
859                }
860                /*插入*/
861                else if ((x > (Frame + Spacing / 2) + buttleWidth + Spacing) && (x <
                     (Frame + Spacing / 2) + 2 * buttleWidth + Spacing) && mklButton)
862                {
863                    fillrectangle(Frame, 60, width - 100, height - 2 * Frame);    /*清空输
                         出区域*/
864                    info *newone= (info*)malloc(sizeof(info));
865                    newone = &addinfo(newpeople);    /*newonw就是要插入的节点信息*/
866                    FlushMouseMsgBuffer();    /*清空鼠标缓存区*/
867                    /***************************************
868                    *                                     *
869                    *         插入的代码                  *
870                    *         变量名：newone              *
871                    *                                     *
872                    ***************************************/
873                }
874                /*退出*/
875                else if ((x > (Frame + Spacing / 2) + 2 * (buttleWidth + Spacing)) && (x
                     < (Frame + Spacing / 2) + 2 * (buttleWidth + Spacing) + buttleWidth) &&
                     mklButton)
876                {
877                    exit(1);
878                }
```

```
879                    /*画树*/
880                    else if ((x > (Frame + Spacing / 2) + 3 * buttleWidth + Spacing) && (x < ⮑
                        (Frame + Spacing / 2) + 3 * (buttleWidth + Spacing) + buttleWidth) && ⮑
                        mklButton)
881                    {
882                        LOGFONT f;
883                        gettextstyle(&f);
884                        f.lfHeight = 15;
885                        settextcolor(BLUE);
886                        setbkmode(TRANSPARENT);
887                        _tcscpy_s(f.lfFaceName, _T("黑体"));
888                        settextstyle(&f);
889                        setfillcolor(RGB(0,0,0));
890                        fillrectangle(0, 60, width, height - 2 * Frame);
891                        MouseTreeNum++;
892                        setlinecolor(BLUE);
893                        if (MouseTreeNum % 2 != 0)
894                        {
895                            imctree(t, 640, 60+10+5);
896                            setfillcolor(RGB(255, 255, 255));
897                        }
898                        else
899                        {
900                            setfillcolor(RGB(255, 255, 255));
901                            setlinecolor(RGB(255, 255, 255));
902                            fillrectangle(Frame, 60, width - 100, height - 2 * Frame);    /*清⮑
                                空输出区域*/
903                            initImg();
904                            DrawButtle();
905                            GetMouse(out);
906                        }
907                    }
908                }
909                /* 如果单机次数为奇数，说明菜单栏弹出，判断鼠标单击位置*/
910                if (MouseFindNum % 2 != 0)
911                {
912                    LOGFONT f;
913                    gettextstyle(&f);                          // 获取当前字体设置
914                    f.lfHeight = 25;
915                    settextcolor(BLACK);
916                    setbkmode(TRANSPARENT);
917                    _tcscpy_s(f.lfFaceName, _T("黑体"));     // 设置字体为“黑体”
918                    settextstyle(&f);
919
920                    if (y > (height - 200 + Buttom + buttleHeight + 20) && y < (height - 200 ⮑
                        + Buttom + buttleHeight + 20 + MenuHeight))
921                    {
922                        LOGFONT f;
923                        gettextstyle(&f);                          // 获取当前字体设置
924                        f.lfHeight = 25; // 设置字体高度
925                        settextcolor(BLACK);
926                        setbkmode(TRANSPARENT);
927                        _tcscpy_s(f.lfFaceName, _T("黑体"));     // 设置字体为“黑体”
928                        settextstyle(&f);
929                        /*根据姓名查找*/
930                        if (x > (Frame + Spacing / 2) && x < (Frame + Spacing / 2 +            ⮑
```

```
                          MenuWidth) && mklButton)
931                       {
932                           ifgetName=InputBox(name, 20, "", "请输入你要查询的姓名", "查询",  ⮐
                              300);    /*用于以对话框形式获取用户输入*/
933                           sscanf(name, "%s", getInfo);    /*获取用户输入的字符串*/
934
935                           RECT r = { Frame + 15, 75, width - 135,  height - 215 };
936                           FlushMouseMsgBuffer();    /*清空鼠标缓存区*/
937                       }
938                       /*根据出生年月查找*/
939                       else if (x > (Frame + Spacing / 2) + MenuWidth + MenuSpacing && x <  ⮐
                          (Frame + Spacing / 2) + 2 * MenuWidth + MenuSpacing && mklButton)
940                       {
941                           InputBox(year, 20, "", "请输入你要查询的出生年月", "查询", 300,  ⮐
                              0, false);    /*用于以对话框形式获取用户输入*/
942                           sscanf(year, "%s", getInfo);
943                           findbirth(t, year);
944                           FlushMouseMsgBuffer();    /*清空鼠标缓存区*/
945                       }
946                       /*根据逝世日期查找*/
947                       else if (x > (Frame + Spacing / 2) + 2 * MenuWidth + 2*MenuSpacing && ⮐
                          x < (Frame + Spacing / 2) + 3 * MenuWidth +2* MenuSpacing &&  ⮐
                          mklButton)
948                       {
949                           InputBox(finddeath, 20, "", "请输入你要查询的逝世年月", "查询",  ⮐
                              300, 0, false);    /*用于以对话框形式获取用户输入*/
950                           sscanf(finddeath, "%s", getInfo);
951                           fdeathdata(t,finddeath);
952                           FlushMouseMsgBuffer();    /*清空鼠标缓存区*/
953                       }
954                       /*根据职业查找*/
955                       else if (x > (Frame + Spacing / 2) + 3*MenuWidth +3* MenuSpacing && x ⮐
                          < (Frame + Spacing / 2) + 4 * MenuWidth + 3 * MenuSpacing &&  ⮐
                          mklButton)
956                       {
957                           InputBox(findprofe, 20, "", "请输入你要查询的职业", "查询", 300,  ⮐
                              0, false);    /*用于以对话框形式获取用户输入*/
958                           sscanf(findprofe, "%s", getInfo);
959                           findpro(t, findprofe);
960                           FlushMouseMsgBuffer();    /*清空鼠标缓存区*/
961                       }
962                       /*根据配偶姓名查找*/
963                       else if (x > (Frame + Spacing / 2) + 4 * MenuWidth +4 * MenuSpacing  ⮐
                          && x < (Frame + Spacing / 2) + 5 * MenuWidth + 4*MenuSpacing &&  ⮐
                          mklButton)
964                       {
965                           InputBox(findspouse, 20, "", "请输入你要查询的逝世年月", "查询",  ⮐
                              300, 0, false);    /*用于以对话框形式获取用户输入*/
966                           sscanf(findspouse, "%s", getInfo);
967                           findspous(t, findspouse);
968                           FlushMouseMsgBuffer();    /*清空鼠标缓存区*/
969                       }
970                   }
971               }
972          if (ifgetName)    /* 如果输入要查询的姓名后单击确定，则输出关系菜单供选择*/
973              {
```

```
974
975                relationshipMenu();
976                ifgetName = FALSE;    /*初始化，避免重复查找不输入*/
977                Sleep(60);
978                MOUSEMSG mousemsg1;      /* 定义鼠标消息*/
979                person *str;
980                str = findname(t, name);
981                while (true)
982                {
983                    mousemsg1 = GetMouseMsg();    /*获取一条鼠标消息*/
984                    int x1, y1;
985                    bool mklButton1;
986                    bool ifgetGener;
987                    x1 = mousemsg1.x;    /*获取鼠标当前x坐标*/
988                    y1 = mousemsg1.y;    /*获取鼠标当前y坐标*/
989                    mklButton1 = mousemsg1.mkLButton;    /*获取鼠标当前左键是否按下*/
990
991                    if (x1 > Frame + (width - 2 * Frame) / 3 && x1 < Frame + width - 2 *
                         Frame / 3 + relationMenuWidth)    /*判断鼠标是否在关系菜单的宽度区间
                         */
992                    {
993                        if ((y1 > 63) && (y1 < (63 + relationMenuHeight)) &&
                             mklButton1)    /*单击第一个按钮查询父母*/
994                        {
995                            fillrectangle(Frame, 60, width - 100, height - 2 *
                             Frame);    /*清空输出区域*/
996                            parents(t, str);
997                            break;
998                        }
999                        else if ((y1 > (63 + relationMenuHeight + 3)) && (y1 < (63 + 2 *
                             relationMenuHeight + 3)) && mklButton1)    /*单击第二个按钮，查询
                             祖先*/
1000                        {
1001                            fillrectangle(Frame, 60, width - 100, height - 2 *
                             Frame);    /*清空输出区域*/
1002                            ancestor(t, str);
1003                            break;
1004                        }
1005                        else if ((y1 > (63 + 2 * relationMenuHeight + 6)) && (y1 < (63 +
                             3 * relationMenuHeight + 6)) && mklButton1)    /*单击第三个按钮，
                             查询兄弟*/
1006                        {
1007                            fillrectangle(Frame, 60, width - 100, height - 2 *
                             Frame);    /*清空输出区域*/
1008                            brother(t, str);
1009                            break;
1010                        }
1011                        else if ((y1 > (63 + 3 * relationMenuHeight + 9)) && (y1 < (63 +
                             4 * relationMenuHeight + 9)) && mklButton1)    /*单击第四个按钮，
                             查询孩子*/
1012                        {
1013                            fillrectangle(Frame, 60, width - 100, height - 2 *
                             Frame);    /*清空输出区域*/
1014                            children1(str);
1015                            break;
1016                        }
```

```
1017                    else if ((y1 > (63 + 4 * relationMenuHeight + 12)) && (y1 < (63 + ⮐
                        5 * relationMenuHeight + 12)) && mklButton1)    /*单击第五个按 ⮐
                        钮，查询后代*/
1018                    {
1019                        fillrectangle(Frame, 60, width - 100, height - 2 *          ⮐
                        Frame);    /*清空输出区域*/
1020                        ifgetGener = InputBox(getGeneration, 20, "", "您要查询第几 ⮐
                        代", "查询", 300);
1021                        sscanf(getGeneration, "%c",gener);
1022                        if (ifgetGener)
1023                        {
1024                            person *find_name = findname(t, name);
1025                            children(find_name, gener);
1026                        }
1027                        break;
1028                    }
1029                    else if ((y1 > (63 + 5 * relationMenuHeight + 12)) && (y1 < (63 + ⮐
                        6 * relationMenuHeight + 12)) && mklButton1)    /*单击第6个按 ⮐
                        钮，查看个人信息*/
1030                    {
1031                        fillrectangle(Frame, 60, width - 100, height - 2 *          ⮐
                        Frame);    /*清空输出区域*/
1032
1033                        display(str);
1034                        break;
1035                    }
1036                }
1037            }
1038        }
1039    }
1040    return getInfo;
1041 }
1042
1043
1044 void title()
1045 {
1046    LOGFONT f;
1047    gettextstyle(&f);                        // 获取当前字体设置
1048    f.lfHeight = 35; // 设置字体高度为 12
1049    settextcolor(RGB(72,81,81));
1050    setbkmode(TRANSPARENT);
1051    _tcscpy_s(f.lfFaceName, _T("黑体"));     // 设置字体为 "黑体"
1052    settextstyle(&f);
1053    char s[] = "家庭族谱查询";
1054    outtextxy(15,15, s);
1055 }
1056
```