**National University of Computer and Emerging Sciences**



Packman Game for semester project

for

Computer Organization and Assembly Language

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**Department of Computer Science**

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| **Introduction & Features:**  **Packman is a game in which your sprite has to move through mines and pills .Pills will increment scores by 10 and mines decrement lives by 1 if your lives get to zero you will lose the game and if you go through eating all the dots (.) present on the board you will win the game.** |

**CODE:**

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| include irvine32.inc  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*DATA SECTION\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  .data  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*MENU DISPLAY\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  pM db " ----PACMAN----",0  menu db " \*\*\*///MENU\\\\*\*\*"  m1 db 0ah,0dh," 1.Play Game"  m2 db 0ah,0dh," 2.Instruction" ;m1,2,3,4,5, are the names used to dispaly string required in menu display  m3 db 0ah,0dh, " 3.Difficulty"  m4 db 0ah,0dh, " 4.Continue"  m5 db 0ah,0dh ," 5.EXIT",0  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*INSTRUCTION DISPLAY \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  iM db " ----PACMAN----"  instruc db " \*\*\*Instructions\*\*\*"  ;i(1,2,3,4) string are to be meant to display to instructions in instructions menu  i1 db 0ah,0dh," 1.when pacman eat pill your score will be incremented by 10."  i2 db 0ah,0dh," 2.when there is a clash between pacman and mine your live will be decremented by 1."  i3 db 0ah,0dh, " 3.When live becomes '0' your game ends."  i4 db 0ah,0dh, " 4.you can exit your game at any time by pressing ESC",0  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  winn db "You Win The GAME !!!",0  flag db 0  fif db "1.EASY 2.intermediate 3.HARD",0  GameOver db "GameOver Better Luck Next Time...",0  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*CHOICE DIPLAY\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  choice db "Enter your choice from Menu...",0;  exit1 db "Press any key to continue...",0  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*GRID(.)\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*LIVES\*\*\*\*\*\*\*\*\*\*\*\*\*\*  grid db 100 dup('.')  livstr db "Lives :",0 ;string for lives  counter1 db 0  temp2 dd ?  pacman db 2  counter2 dd 0  t1 dd 1  score db 0  lives db 3  scorestr db "Score :",0 ;scores string  ;call writestring  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*CODE SECTION\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  .code  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*PILL CONROLLING PROCEDUR\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  ; PILL HANDLE  pillHandle proc  cmp grid[esi],'\*'  jz scin  jmp nex  scin:  mov eax,0  add score,10  nex:  ret  pillHandle endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*SCORE HANDEL PROC\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  scoreHandle proc  cmp grid[esi],'.'  jz scin  jmp nex  scin:  mov eax,0  inc score  nex:  ret  scoreHandle endp ;  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*MINE HANDLE PROC\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  mineHandle proc  cmp grid[esi],'M'  jz scin  jmp nex  scin:  mov eax,0  ;mov esi,0  ;mov esi,counter2  dec lives  cmp lives,0  jz go  mov esi,1  mov grid[esi],2  jmp nex  go:  call clrscr  mov edx,offset gameover  call writestring  mov al,2  mov ecx,5  lab1:  call writechar  loop lab1  nex:  ret  mineHandle endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*INSTUCTIONS PROCEDUR\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  instruction1 proc  mov edx,offset instruc  call writestring  call crlf  call crlf  mov edx,offset exit1  call writestring  call readchar  ret  instruction1 endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*RAND\_U PROCDURE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  rand\_u proc  ;mov dl,0  ;mov dh,0  ;call gotoxy  mov eax,0  mov eax,100  ;call randomize  mov ecx,4  l1:  call randomRange  mov esi,eax  mov grid[esi],'M'  loop l1  mov esi,88  mov grid[esi],'M'  mov esi,76  mov grid[esi],'M'  mov esi,42  mov grid[esi],'M'  ret  rand\_u endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*RANDOM PILL PROCEDURE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  randpill proc  mov dl,0  mov dh,0  call gotoxy  mov ecx,0  mov eax,100  mov ecx,4  call randomize  l1:  call randomrange  mov esi,eax  mov grid[esi],'\*'  ;call writechar  loop l1  ret  randpill endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*GRIDS PRINTING PROCDURE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  printGrid proc  mov ecx,100  mov esi,0  mov counter1,0  l1:  cmp counter1,10  jz zero  jmp next1  zero:  mov counter1,0  call crlf  next1:  mov eax,0  mov al,grid[esi]  call writechar  mov al,' ';  call writechar  inc esi  inc counter1  loop l1  call crlf  mov edx,offset livstr  call writestring  mov esi,0  mov ecx,3  mov al,lives  call writedec  call crlf  mov edx,offset scorestr  call writestring  cmp grid[esi],'.'  jz scin  jmp nex  scin:  mov eax,0  inc score  nex:  mov al,score  call writedec  ret  printGrid endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*INIT PROCEDUR\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  init proc  mov ecx,0  mov ecx,100  mov esi,0  mov counter1,0  l2:  cmp counter1,10  jz zero  jmp next1  zero:  mov counter1,0  mov grid[esi],'|'  dec esi  mov grid[esi],'|'  inc esi  next1:  mov eax,0  inc esi  inc counter1  loop l2  mov esi,0  mov grid[esi],'|'  mov esi,99  mov grid[esi],'|'  mov esi,1  mov GRID[ESI],2  ret  init endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*MENU PRINTING PROCEDUR\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  printMenu proc  mov edx,offset choice  call writestring  call crlf  mov edx,offset menu  call writestring  call crlf  err:  call readchar  cmp al,'1'  jz nex  cmp al,'2'  jz inst  cmp al,'3'  jz nex  cmp al,'4'  jz dif  cmp al,'5'  mov flag,1  ;jmp err  inst:  call instruction1  dif:  call diff  nex:  ret  printMenu endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*DIFF PROCEDURE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  diff proc  ret  diff endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*MOVEMENT PROCUDRES\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  ;MOVEMENT  movement proc  call readchar  cmp al,'w'  jz up  JMP n1  up:  mov grid[esi],' '  cmp esi,10  jg ok1  jmp pk1  ok1:  sub esi,10  call scoreHandle  call mineHandle  call pillHandle  mov grid[esi],2  jmp ls  pk1:  add esi,90  call mineHandle  call scoreHandle  call pillHandle  mov grid[esi],2  n1:  cmp al,'s'  jz down  jmp n2  down:  mov grid[esi],' '  cmp esi,90  jl ok2  jmp pk2  ok2:  add esi,10  call scoreHandle  call mineHandle  call pillHandle  mov grid[esi],2  jmp ls  pk2:  sub esi,90  call scoreHandle  call mineHandle  call pillHandle  mov grid[esi],2  n2:  cmp al,'a'  jz left  jmp n3  left:  mov grid[esi],' '  dec esi  cmp grid[esi],'|'  jnz ok3  jmp pk3  ok3:  call scoreHandle  call mineHandle  call pillHandle  mov grid[esi],2  jmp ls  pk3:  add esi,8  call scoreHandle  call mineHandle  call pillHandle  mov grid[esi],2  n3:  cmp al,'d'  jz right  jmp n4  right:  mov grid[esi],' '  inc esi  cmp grid[esi],'|'  jnz ok4  jmp pk4  ok4:  call scoreHandle  call mineHandle  call pillHandle  mov grid[esi],2  jmp ls  pk4:  sub esi,8  call scoreHandle  call mineHandle  call pillHandle  mov grid[esi],2  n4:  ls:  ret  movement endp  ;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*MAIN PROCEDURE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  main proc  mov eax,0  mov ecx,0  call rand\_u  call randpill  mov edx,offset pM  call writestring  call crlf  call crlf  mov ax,0  call printMenu  call clrscr  mov edx,offset pM  call writestring  call crlf  call crlf  mov ax,0  call printMenu  mov esi,2  ;mov grid[esi],2  call init  ;call clrscr  cmp flag,1  jz nexx  game:  mov t1,esi  call printGrid  mov dl,7  mov dh,7  call gotoxy  mov al,' '  call writechar  mov esi,t1  cmp grid[esi],'.'  jz incsc  jmp dsk  incsc:  inc score  dsk:  call movement  call crlf  call crlf  ;call clrscr  cmp score,100  jz win  jmp game  jmp nexx  win:  call clrscr  mov edx,offset winn  call writestring  nexx:  call crlf  mov edx,offset exit1  call writestring  mov al,pacman  call writechar  call readchar  exit  main endp  end main |

**Screen shots:**

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