**DOCUMENTATIE**

Aplicație pentru gestiunea unui cont bancar. Fiecare tranzacție are ziua, suma, și tipul (intrare/ieșire). Aplicația permite:

* 1. **1) Adăugare de noi tranzacții**
  2. • Adaugă tranzacție (se dă ziua, suma, tipul)
  3. • Actualizare tranzacție (se dă ziua, suma, tipul)
  4. **2) Ștergere**
  5. • Șterge toate tranzacțiile de la ziua specificată
  6. • Șterge tranzacțiile dintr-o perioadă dată (se dă ziua de început și sfârșit)
  7. • Șterge toate tranzacțiile de un anumit tip
  8. **3) Căutări**
  9. • Tipărește tranzacțiile cu sume mai mari decât o sumă dată
  10. • Tipărește toate tranzacțiile efectuate înainte de o zi și mai mari decât o sumă (se dă suma și ziua)
  11. • Tipărește tranzacțiile de un anumit tip

1. **4) Rapoarte**
2. • Suma totală a tranzacțiilor de un anumit tip
3. • Soldul contului la o dată specificată
4. • Tipărește toate tranzacțiile de un anumit tip ordonat după sumă
5. **5) Filtrare**.
6. • Elimină toate tranzacțiile de un anumit tip
7. • Elimină toate tranzacțiile mai mici decât o sumă dată care au tipul specificat
8. **6) Undo.**
9. • Reface ultima operație (lista de tranzacții revine la ce exista înainte de ultima operație care a modificat lista).

|  |  |
| --- | --- |
| Plan de iteratii | |
| Nr. Iteratie | Functionalitati adaugate |
| 1 | 1, 3 |
| 2 | 2, 5 |
| 3 | 4, 6 |

|  |  |  |
| --- | --- | --- |
| Scenariu de rulare | | |
| User | Program | Comentarii |
|  | Afiseaza meniul |  |
|  | ‘’Introduceti comanda” |  |
| 1 |  | Utilizatorul alege functionalitatea de Adaugare |
|  | Afiseaza comenzile functionalitatii Adaugare |  |
|  | “Introduceti comanda |  |
| 1 |  | Utilizatorul alege comanda de adaugare noua tranzacite |
|  | “Introduceti tranzactia  Introduceti anul” |  |
| 120 |  |  |
|  | “Anul introdus nu este valid  Introduceti anul” | Anul introsud nu este unul valid |
| 3000 |  |  |
|  | “Anul introdus nu este valid  Introduceti anul” | Anul introdus nu este unul valid |
| 2017 |  |  |
|  | “Introduceti luna” |  |
| 20 |  |  |
|  | ‘’ Luna introdusa nu este valida  Introduceti luna’’ |  |
| 8 |  |  |
|  | ‘’Introduceti ziua’’ |  |
| 55 |  |  |
|  | ‘’Ziua introdusa nu este valida  Introduceti ziua’’ | Ziua introdusa nu este valida |
| 13 |  |  |
|  | “Introduceti suma de bani transferata” |  |
| -30 |  |  |
|  | ‘’ Nu puteti introduce o suma negativa sau nula  Introduceti suma de bani transferata’’ | Programul nu accepta sume negative |
| 1300 |  |  |
|  | ‘’ Introduceti tipul de tranzactie (0 - Adaugare/1 - Retragere)’’ |  |
| 4 |  |  |
|  | ‘’ Nu puteti introduce alt tip de tranzactie inafara de 0 sau 1  Introduceti tipul de tranzactie (0 - Adaugare/1 - Retragere)’’ |  |
| 1 |  |  |
|  | Afiseaza meniul. Astepta comanda. |  |
| Introducere identica a tranzactiei: Data:13.07.2017 Suma1200 Tip Adaugare | | |
| Introducere identica a tranzactiei: Data:20.4.2017 Suma3200 Tip Adaugare | | |
| Introducere identica a tranzactiei: Data:3.10.2017 Suma100 Tip Retragere | | |
|  | Afiseaza meniul. Asteapta comanda |  |
| 1 |  |  |
|  | Afiseaza comenzile functionalitatii Adaugare |  |
|  | Asteapta comanda |  |
| 2 |  |  |
|  | “Introduceti vechea tranzactie” |  |
| Introducere tranzactie  Data: 14.06.2016  Suma 2300  Tip Adaugare |  |  |
|  | “Introduceti noua tranzactie” |  |
| Introducere tranzactie  Data: 14.06.2016  Suma 2300  Tip Retragere |  |  |
|  | “Tranzactia pe care doriti sa o schimbati nu exista!” |  |
|  | Afiseaza meniul. Asteapta comanda |  |
| 1 |  |  |
|  | Afiseaza comenzile functionalitatii Adaugare |  |
|  | Asteapta comanda |  |
| 2 |  |  |
|  | “Introduceti vechea tranzactie” |  |
| Introducere tranzactie  Data: 13.07.2017  Suma 1200  Tip Adaugare |  |  |
|  | “Introduceti noua tranzactie” |  |
| Introducere tranzactie  Data: 1.1.2011  Suma 200  Tip Adaugare |  |  |
|  | “Schimbare efectuata cu succes” |  |
|  | Afiseaza meniul. Asteapta comanda |  |
| 3 |  |  |
|  | Afiseaza comenzile functionalitatii Cautari |  |
|  | Asteapta comanda |  |
| 1 |  |  |
|  | “Tipareste tranzactiile cu sume mai mari decat:” |  |
| 1000 |  |  |
|  | Afiseaza tranzactiile:  Data:13.07.2017 Suma1200 Tip Adaugare  Data:20.4.2017 Suma3200 Tip Adaugare |  |
|  | Afiseaza meniu. Asteapta comanda |  |
| 3 |  |  |
|  | Afiseaza comenzile functionalitatii Cautari |  |
|  | Asteapta comanda |  |
| 1 |  |  |
|  | “Tipareste tranzactiile cu sume mai mari decat:” |  |
| 10000 |  |  |
|  | “Nu s-au gasit tranzactii dupa criteriile indicate” |  |
|  | Afiseaza meniu. Asteapta comanda |  |
| 3 |  |  |
|  | Afiseaza comenzile functionalitatii Cautari |  |
|  | Asteapta comanda |  |
| 2 |  |  |
|  | “Tipareste tranzactiile cu sume mai mari decat:” |  |
| 1000 |  |  |
|  | “Tipareste tranzactiile inainte de data de:” |  |
|  | “Introduceti anul” |  |
| 2017 |  |  |
|  | “Introduceti luna” |  |
| 6 |  |  |
|  | “Introduceti ziua” |  |
| 1 |  |  |
|  | Afiseaza tranzactiile:  Data:20.4.2017 Suma3200 Tip Adaugare |  |
|  | Afiseaza meniul. Asteapta comanda |  |
| 3 |  |  |
|  | Afiseaza comenzile functionalitatii Cautari |  |
|  | Asteapta comanda |  |
| 3 |  |  |
|  | “Introduceti tipul de tranzactie (0 - Adaugare/1 - Retragere)” |  |
| 0 |  |  |
|  | Afiseaza tranzactiile:  Data:1.1.2011 Suma200 Tip Adaugare  Data:20.4.2017 Suma3200 Tip Adaugare  Data:13.8.2017 Suma1300 Tip Adaugare |  |
|  | Afiseaza meniul. Asteapta comanda |  |
| 3 |  |  |
|  | Afiseaza comenzile functionalitatii Cautari |  |
|  | Asteapta comanda |  |
| 0 |  | Comanda 0 intoarce urser-ul la meniul principal |
|  | Afiseaza meniul. Asteapta comanda |  |
| 0 |  | Comanda 0 este exit |
|  | Parasirea aplicatiei |  |

**Testarea functiilor**

|  |  |
| --- | --- |
| **CompareDates(date1, date2)** | |
| **compareDates((13,7,2017),(12,7,2017))** | **1** |
| **compareDates((12,12,2012),(12,12,2012))** | **0** |
| **compareDates((12,12,2012),(13,12,2012))** | **-1** |
| **compareDates((3,6,2000),(20,7,2000))** | **-1** |
| **compareDates((3,8,2000),(12,5,2000))** | **1** |
| **compareDates((4,2,2001),(21,12,2000))** | **1** |
| **compareDates((13,2,2009),(20,13,2010))** | **-1** |

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| **getTransactionsAbove(trans\_list, low\_amount)** | |
| **getTransactionsAbove([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],500)** | **[((21,7,2017),1200,0),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((30,11,2015),20000,0),**  **((26,4,2016),1500,1)]** |
| **getTransactionsAbove([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],100)** | **[((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)]** |
| **getTransactionsAbove([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],1000)** | **[((21,7,2017),1200,0),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((30,11,2015),20000,0),**  **((26,4,2016),1500,1)]** |
| **getTransactionsAbove([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],1555)** | **[((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((30,11,2015),20000,0)]** |
| **getTransactionsAbove([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],2000)** | **[((30,2,2017),3200,0),**  **((20,1,2016),3300,0),**  **((3,10,2017),2400,1),**  **((30,11,2015),20000,0)]** |
| **getTransactionsAbove([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],0)** | **[((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],** |
| **getTransactionsAbove([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],20000)** | **[]** |

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| --- | --- |
| **getTransactionsAboveBefore(trans\_list,low\_amount,high\_date)** | |
| **getTransactionsAboveBefore([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],500,** **(20,6,2016))** | **[((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((30,11,2015),20000,0),**  **((26,4,2016),1500,1)]** |
| **getTransactionsAboveBefore([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],3000,** **(20,6,2016))** | **[((20,1,2016),3300,0),**  **((30,11,2015),20000,0)]** |
| **getTransactionsAboveBefore([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],1000,** **(1,1,2017))** | **[ ((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((30,11,2015),20000,0),**  **((26,4,2016),1500,1)]** |
| **getTransactionsAboveBefore([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],1,** **(1,1,1901))** | **[]** |
| **getTransactionsAboveBefore([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],1,** **(1,1,2018))** | **([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)]** |

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| **getTransactionsOneType(trans\_list,type)** | |
| **getTransactionsOneType([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],0)** | **[((21,7,2017),1200,0),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0)]** |
| **getTransactionsOneType([((21,7,2017),1200,0),**  **((9,12,2016),360,1),**  **((30,2,2017),3200,0),**  **((14,5,2016),1800,0),**  **((20,1,2016),3300,0),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((18,3,1920),340,0),**  **((30,11,2015),20000,0),**  **((13,11,2014),239,0),**  **((26,4,2016),1500,1)],1)** | **[((9,12,2016),360,1),**  **((31,11,2016),1899,1),**  **((3,10,2017),2400,1),**  **((26,4,2016),1500,1)]** |
| **getTransactionsOneType([((21,7,2017),1200,0),**  **((9,12,2016),30,1),**  **((30,2,2001),300,1),**  **((14,3,2016),100,0),**  **((2,1,2006),3300,1),**  **((31,11,2016),18599,1),**  **((3,4,2017),2400,0),**  **((8,3,1924),3450,0),**  **((3,1,2012),200500,0),**  **((13,11,2014),239,0),**  **((26,4,2016),15000,0)],0)** | **[((21,7,2017),1200,0),**  **((14,3,2016),100,0),**  **((3,4,2017),2400,0),**  **((8,3,1924),3450,0),**  **((3,1,2012),200500,0),**  **((13,11,2014),239,0),**  **((26,4,2016),15000,0)]** |
| **getTransactionsOneType([((21,7,2017),1200,0),**  **((9,12,2016),30,1),**  **((30,2,2001),300,1),**  **((14,3,2016),100,0),**  **((2,1,2006),3300,1),**  **((31,11,2016),18599,1),**  **((3,4,2017),2400,0),**  **((8,3,1924),3450,0),**  **((3,1,2012),200500,0),**  **((13,11,2014),239,0),**  **((26,4,2016),15000,0)],1)** | **[((9,12,2016),30,1),**  **((30,2,2001),300,1),**  **((2,1,2006),3300,1),**  **((31,11,2016),18599,1)]** |