ТФЯиТ. КР №1

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1 Прямоугольники

Код основной функции программы на языке Haskell:

```haskell
rectanglesHelper :: Dimensions -> IO ()
rectanglesHelper dims =
    let
        width' = width dims
        height' = height dims
        res = sum $ [(width' - i + 1) * (height' - j +
         ↪  1) | i <- [1 .. width'], j <- [1 ..
         ↪  height']]
     in
        do print res
```

Примеры работы программы:

```
> stack run rectangles -- 7 7
784
> stack run rectangles -- 3 1
6
> stack run rectangles -- 16 20
28560
```

2 Множества

Код основной функции программы на языке Haskell:

```haskell
data Files = Files String String

printUnion :: Set Char -> Set Char -> IO ()
printUnion set1 set2 = do
    putStr "Union of sets: "
    pPrint $ Set.toList $ Set.union set1 set2

printDiff :: Set Char -> Set Char -> IO ()
printDiff set1 set2 = do
    putStr "Difference of sets: "
    pPrint $ Set.toList $ Set.difference set1 set2

printIntersect :: Set Char -> Set Char -> IO ()
printIntersect set1 set2 = do
    putStr "Intersection of sets: "
    pPrint $ Set.toList $ Set.intersection set1 set2

printSize :: Int -> Set Char -> IO ()
printSize i set = do
    putStr $ "Size of alphabet " ++ show i ++ " "
    print $ Set.size set

printSizeOfIntersection :: Set Char -> Set Char -> IO
 ↪  ()
printSizeOfIntersection set1 set2 = do
    putStr "Size of set1 \\ set2 "
    print $ Set.size $ Set.difference set1 set2

sets :: Files -> IO ()
```

```
sets (Files file1 file2) = do
    text1 <- readFile file1
    text2 <- readFile file2
    let symbols1 = Set.fromList text1
        symbols2 = Set.fromList text2
    printUnion symbols1 symbols2
    printIntersect symbols1 symbols2
    printDiff symbols1 symbols2
    printSize 1 symbols1
    printSize 2 symbols2
    printSizeOfIntersection symbols1 symbols2
```

Примеры работы программы:

```
> stack run sets -- examples/sets/sets1.txt
 ↪  examples/sets/sets2.txt
Union of sets: "
    ',-.?ABCDEFGHILMOPQSTVWabcdefghiklmnopqrstuvwxyz'"
Intersection of sets: "
    ,-.ADGIOSTWabcdefghiklmnoprstuvwxy"
Difference of sets: "BCEFLMPQVq'"
Size of alphabet 1 47
Size of alphabet 2 41
Size of set1 \ set2 11
```